YOUTH PANELS: GOVERNMENT'S RESPONSE TO RECOMMENDATIONS

mccy
Ministry of Culture, Community and Youth

NYC
NATIONAL YOUTH COUNCIL
SINGAPORE

Contents

Foreword

In November 2023, the Ministry of Culture, Community and Youth and the National Youth Council launched the Youth Panels for youths to participate in the policymaking process.
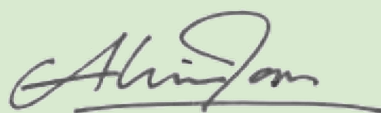
We put youths in the driver's seat of policymaking. They decided on the issues to focus on within each panel and whom to bring to the table. They researched and engaged widely, and held robust discussions. Collectively, they reached over 5,000 youths and stakeholders, and over 20 government agencies and organisations, to arrive at their recommendations.

The Government has considered the recommendations. We agree with the intent of the recommendations, and will be working alongside and supporting our youths to implement initiatives in line with their recommendations. We also invite more youths and other stakeholders like corporates and social enterprises, to partner us to implement these recommendations or continue conversations on issues our youths feel passionately about.

For me, it is rewarding to see our Youth Panels in action over the past year, and producing very good policy recommendations. We value their idealism, drive, and passion to contribute to a stronger Singapore. The youths tell me they appreciated the opportunity to better understand policy considerations that Government has to grapple with, and the difficulties in combining idealism and pragmatism in policymaking.

The Youth Panels showed what it means to take action and make a difference in our society. They also demonstrated their openness to different views and ideas we need to reach our shared outcomes. This gives me confidence for our future.

On behalf of the Government, I thank our Youth Panel members and stakeholders for walking with us on this journey.

Alvin Tan
Minister of State
Ministry of Culture, Community and Youth
Ministry of Trade and Industry
Deputy Chairman, National Youth Council
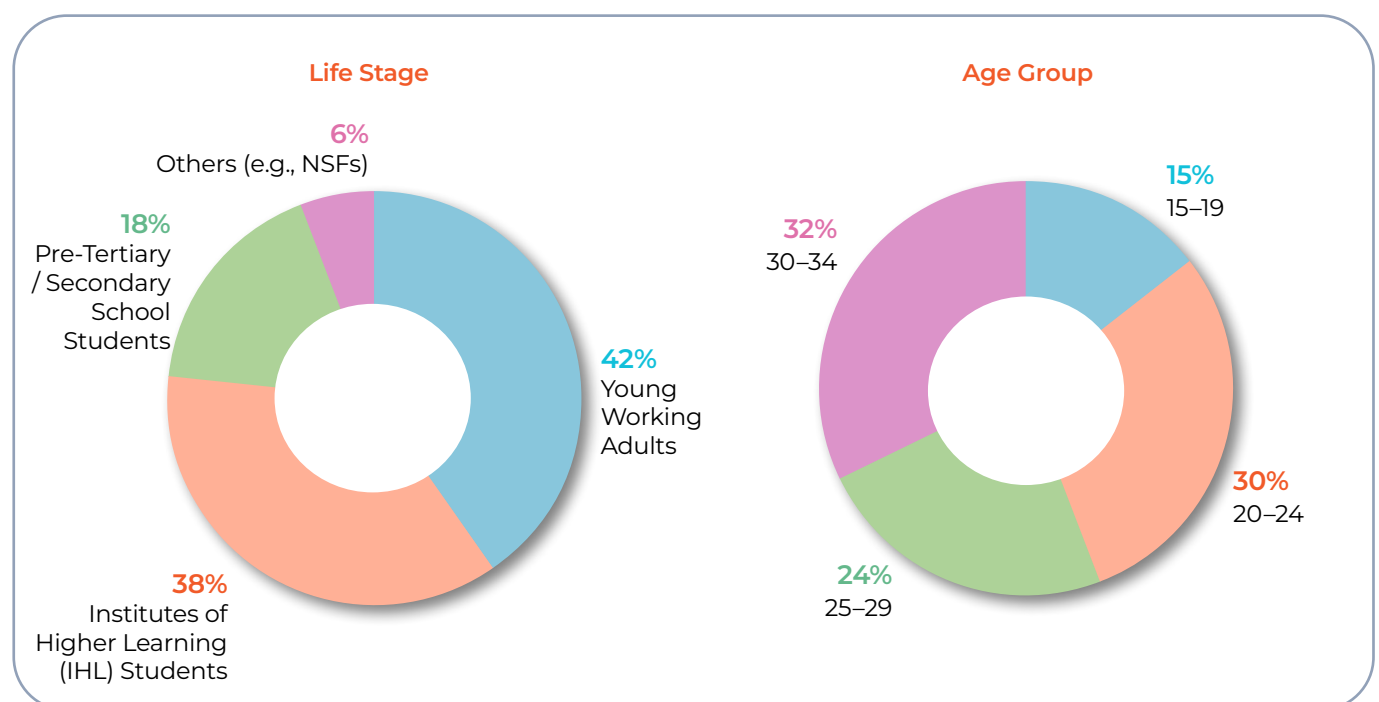
About the Youth Panels

The Youth Panels were launched in November 2023 under Forward Singapore, for youths to co-create policies with the Government. Each panel was led by youths and supported by the Ministry of Culture, Community and Youth (MCCY) and the National Youth Council (NYC), as well as government agencies such as the Ministry of Digital Development and Information (MDDI), Ministry of Finance (MOF), Ministry of Manpower (MOM), Ministry of Sustainability and the Environment (MSE), and Workforce Singapore (WSG).

Four panels were set up:

a) **#LifeHacks**, focusing on financial resilience;
b) **#JobHacks**, focusing on exposure and career experience in Southeast Asia;
c) **#TechHacks**, focusing on digital well-being; and
d) **#GreenHacks**, focusing on domestic recycling behaviours and mindsets.

About 120 youths participated in the Youth Panels. They were identified through an open call, and each panel comprised youths with diverse profiles and backgrounds.

Life Stage

6% Others (e.g., NSFs)

18% Pre-Tertiary / Secondary School Students

42% Young Working Adults

38% Institutes of Higher Learning (IHL) Students

Age Group

15% 15–19

32% 30–34

30% 20–24

24% 25–29

The Process

Over the course of one year, the Youth Panels met regularly, conducted research, and engaged with stakeholders from the people, private, and public sectors, collectively reaching over 5,000 youths and stakeholders and more than 20 government agencies and organisations. They shared their ideas with Prime Minister Lawrence Wong, Minister for Culture, Community and Youth Edwin Tong, and the public at the Youth Policy Forum on 24 August 2024. Youth Panel members were also equipped with knowledge and skills in policymaking and design thinking.

The panels developed a total of 11 recommendations, which were submitted to the Government in January 2025. The full submissions from the panels can be found in Section 3.

21 April 2023

The Youth Panels were announced.

October 2023

An open call for participants was launched.

Phase 1:
Discover & Define

The panels convened and began a series of 4 policymaking and design innovation workshops.

November 2023

February 2024

The panels began research and stakeholder engagements to understand the policy issues and develop ideas, and met at least once a month.

20 April 2024

The panels shared their proposed focus areas and preliminary ideas at a dialogue with Minister of State Alvin Tan.

Phase 2:
Design & Deliver

July 2024

The panels engaged with government agencies and stakeholders to develop their recommendations.

Phase 3:
Youth Policy Forum & Submission of Recommendations

The Youth Policy Forum was held as a milestone event for the panels to showcase their journey, recommendations, and engaged with the public on their ideas.

24 August 2024

September 2024

The panels refined their recommendations, conducted further stakeholder engagements, and met with senior civil servants and Political Office Holders on their proposals.

January 2025

The panels submitted their recommendations to the Ministry of Culture, Community and Youth, the National Youth Council, and respective agencies for review.

April 2025

The panels received the Government's response to their recommendations.

Phase 4:
Closing the Loop

Youth Policy Forum

The Youth Policy Forum, held on 24 August 2024, gave the Youth Panels an opportunity to engage with the public on their preliminary recommendations.

Over 1,000 participants attended the Forum, which featured dialogues with Prime Minister Lawrence Wong and Minister for Culture, Community and Youth Edwin Tong. The Youth Panels also presented their ideas to the public to collect feedback.

The Forum was welcomed by participants as a platform for respectful conversations with diverse views represented, and both the Youth Panels and participants appreciated the opportunity to engage with the public, political office holders, and peers on issues that matter to youths.

Summary of Recommendations

Panel	Recommendation
#LifeHacks	Develop a Financial Literacy Excellence Guide to strengthen youth financial literacy.
	Introduce a Starter Savings Plan to incentivise and support lower-income Singaporeans to build up emergency savings.
#JobHacks	Strengthen youths' awareness of opportunities in Southeast Asia.
	Provide financial support for youths venturing into Southeast Asia.
	Strengthen partnerships to better support students with resources and mentorship to explore Southeast Asia.
#TechHacks	Conduct an annual survey on online harms.
	Adopt a lifecycle model of online harms.
	Implement an accountability-based approach to addressing online harms.
	Involve youths in digital policy development.
#GreenHacks	Phased introduction of smart recycling bins to reduce contamination and improve recycling rates.
	Phased introduction of mandatory standardised recycling labelling scheme to aid consumers to recycle easily and improve recycling rates.

Detailed Response to Youth Panel Recommendations

#LIFEHACKS

Challenge Statement

How might we improve financial literacy among youths and enable them to take necessary action to improve their long-term financial resilience in the present cost of living climate?

Panel Overview

The Panel believes that strong financial literacy is key to addressing concerns about the rising cost of living. However, most youths lack good financial habits and knowledge, and existing resources are difficult to navigate.

The Panel aims to strengthen financial literacy among youths and inculcate the habit of saving and building up emergency savings among lower-income Singaporeans.

The Government agrees that financial literacy is important for youths to make informed financial decisions and plan for their future as they navigate key life transitions. Building up financial knowledge and understanding the social support system in place will also help youths better manage concerns about the cost of living. The Government is also supportive of the Panel's commitment to enhance financial resilience for lower-income Singaporeans.

Detailed Response to Youth Panel Recommendations

#LIFEHACKS

Challenge Statement
How might we improve financial literacy among youths and enable them to take necessary action to improve their long-term financial resilience in the present cost of living climate?

Recommendation 1: Financial Literacy Excellence (FLEX) Guide

The Panel recommends developing a FLEX Guide that consolidates financial information and provides easily digestible content with curated information for important life stages and milestones. This will provide a central resource that youths can refer to when planning for long-term financial goals.

Response

The Government will implement the recommendation and consolidate financial literacy resources for youths based on their life stages. This will make it easier for youths to access these resources which are currently hosted across different agencies' websites. The specific design and features of the product will be studied in greater detail. MCCY and NYC will work with youths, as well as MOF, MoneySense Council agencies (Monetary Authority of Singapore and Ministry of Manpower), and other agencies to curate relevant information and develop this initiative. Youth Panel members have been invited to continue partnering with the Government in developing this, such as providing feedback on the information that youths want. We also welcome financial literacy partners to work with us to improve access to financial literacy for youths.

Recommendation 2: Starter Savings Plan

The Panel recommends developing a Starter Savings Plan as an incentive scheme, to encourage lower-income Singaporeans to build emergency savings and inculcate a habit of saving. The scheme aims to provide lower-income families with an additional buffer and protection, should there be unforeseen emergencies and events that lead to a loss of stable income.

Response

The Government supports the Panel's commitment to help lower-income families build emergency savings, which aligns with the Government's goal to strengthen financial resilience and sense of self-reliance among these families. We also agree with the Panel that the scheme should be situated within and complement the existing system of support for lower-income Singaporeans. The Government will study how to incorporate the key thrust of the Panel's recommendation, taking into account operational considerations and support from community partners. As part of SG Youth Plan engagements, MCCY and NYC will also engage with youths on how support can be strengthened for vulnerable groups, including lower-income families, and support them to take concrete action to help such groups.

Detailed Response to Youth Panel Recommendations

#JOBHACKS

Challenge Statement
How might we help young Singaporeans under 35 to find jobs and economic opportunities in Southeast Asia?

Panel Overview

The Panel found that youths were concerned about their careers and were looking for ways to improve their career health. Drawing on their research and collective experience, the Panel believes that having exposure to and experience working in Southeast Asia can benefit youths in their careers, and aims to encourage and support youths to take up career opportunities in the region.

The Government supports the Panel's goal to encourage youths to explore regional opportunities to gain experience and develop themselves as future-ready and globally informed individuals. We agree that youths will benefit from regional experience, as they can expand their international networks and gain skills in managing cross-border, multi-cultural teams. This will support our future economy by growing the next generation of future Singaporean corporate leaders.

Detailed Response to Youth Panel Recommendations

#JOBHACKS

Challenge Statement
How might we help young Singaporeans under 35 to find jobs and economic opportunities in Southeast Asia?

Recommendation 1: Raise awareness of Southeast Asia opportunities

The Panel found that most youths in Singapore are not aware of economic opportunities (e.g., internships) in Southeast Asia. The Panel recommends building on existing efforts such as social media stories to create greater awareness of opportunities in Southeast Asia, including:

· Commissioning local media companies to create stories of Singaporeans who have ventured into the region to live and work.
· Hosting information on NYC's Discover website, which can be used as a resource for education and career guidance for students.

Response

The Government will implement this recommendation. Raising awareness of the opportunities and support available is a key step to encourage youths to venture into the region. NYC will feature regional and global content on a digital platform as a testbed for these ideas to improve awareness of regional and global exposure opportunities. NYC invites media partners and companies with an overseas presence to work with us on this endeavour.

Detailed Response to Youth Panel Recommendations

#JOBHACKS

Challenge Statement
How might we help young Singaporeans under 35 to find jobs and economic opportunities in Southeast Asia?

Recommendation 2: Financial support for youths venturing into Southeast Asia

The Panel found that against the backdrop of Singapore's relatively higher cost of living, youths are concerned about earning less while working in other Southeast Asian countries. The Panel recommends establishing a tiered stipend guideline for Southeast Asia-focused exposure and internship programmes, based on the cost of living in Singapore and prevailing market exchange rates.

Response
The Government agrees with the intent of this recommendation, which is to encourage youths to embark on overseas stints.

Existing programmes that cater to youths, such as the Global Ready Talent programme (GRT), the Asia-Ready Exposure Programme (AEP), and programmes at Institutes of Higher Learning (IHLs), provide financial support for youths.
- Under GRT, additional monthly subsistence allowance and lump sum travel allowance are provided to students at IHLs, for overseas internships in Southeast Asia, China, India, and developing markets.
- IHLs also provide financial support in the form of loans and grants to students going on overseas internships. For example, under its Singapore International Chamber of Commerce (SICC) ASEAN Internship Programme, the Singapore University of Technology and Design (SUTD) provides up to S$5,000 to awardees, to support their expenses during their internship in ASEAN countries.
- For AEP, NYC works with IHLs and partners to defray the costs of overseas exposure to Southeast Asia. This covers key expenses that youths might incur while pursuing a short-term regional exposure opportunity.

For young workers, overseas work programmes, such as the Overseas Markets Immersion Programme, provides financial support (e.g., salary support and overseas cost of living allowance) to partially defray the costs of companies sending their workers abroad.

The Government will continue to provide support to make regional opportunities for youths available and accessible, and welcomes further ideas and suggestions in this regard.

Detailed Response to Youth Panel Recommendations

#JOBHACKS

Challenge Statement
How might we help young Singaporeans under 35 to find jobs and economic opportunities in Southeast Asia?

Recommendation 3: Support students to explore Southeast Asia

The Panel recommends strengthening partnerships between government agencies and people and private sector organisations that support mentoring or youth development, to guide and inspire students to explore opportunities in Southeast Asia.

The Panel suggests that:
- Networks of mentors, especially those with experience in Southeast Asia, can be centralised and made available to schools, to level student access to mentors.
- Mentorship programmes can be integrated into education and career guidance (ECG) in schools for consistent and meaningful career guidance.
- Overseas immersion programmes can be expanded for students to experience work environments in Southeast Asia.

Response

The Government will incorporate this recommendation with existing efforts. The Government agrees that mentoring can encourage more youths to consider and take up opportunities in Southeast Asia. Under the national Mentoring SG movement, youths have opportunities to connect with mentors with regional experiences. We welcome more mentors with regional experience to step forward and sign up with Mentoring SG as mentors.

Under the Ministry of Education (MOE)'s ECG programme, all secondary schools and post-secondary education institutes have access to their own ECG counsellor who supports students in their journey from school to further education or work. MOE can work with Mentoring SG to explore how student mentorship can be further supported.

MCCY and NYC will also continue providing overseas exchanges and immersion programmes for youths, such as the Asia-Ready Exposure Programme (AEP) and the Youth Expedition Project (YEP).
- Under AEP, NYC will continue to offer, in partnership with IHLs, short-term immersion opportunities that provide industry exposure and economic opportunities in Southeast Asia, China, and India.
- Under YEP, NYC will create more opportunities for Singaporean youths to volunteer together with local youths in Southeast Asia, China, and India, so Singaporean youths can play their part to be responsible global citizens who are connected with the rest of the world.

Detailed Response to Youth Panel Recommendations

#JOBHACKS

Challenge Statement
How might we help young Singaporeans under 35 to find jobs and economic opportunities in Southeast Asia?

Recommendation 3: Support students to explore Southeast Asia

Concurrently, MOE provides schools with funding assistance, trip planning, and curriculum resources such as facilitation guides and country briefs, to help them design rich learning experiences in Southeast Asian countries. Schools can also plan for local-based internationalisation experiences through online exchanges with schools in Southeast Asia, China, and India.

IHLs are expanding opportunities for students to gain overseas exposure, towards a 70-70 target: for 70% of local IHL students to have overseas exposure, and for 70% of this group to have exposure to Southeast Asia, China, or India. IHL programmes such as the Ngee Ann Polytechnic's Twin-City Southeast Asia Immersion Leadership Programme for overseas internships and programmes organised by the NUS Overseas Colleges provide students with various opportunities for regional and global exposure. These initiatives aim to broaden students' global perspectives and enhance their appreciation of the region's economic vibrancy.

Detailed Response to Youth Panel Recommendations

#TECHHACKS

Challenge Statement

How might we strengthen mindfulness and awareness towards online harms on social media among Singaporean youths, and understand their expectations in terms of safe online spaces in Singapore, with the aim of building a kinder, safer, and healthier digital world?

Panel Overview

The Panel found that the use of social media is a daily fact of life for youths in Singapore. While these platforms bring immense benefits, they are also spaces where online harms and dangers such as cyberbullying, harassment, and misinformation lurk. The Panel seeks to address two key issues: (i) strengthening mindfulness and awareness towards online harms on social media, especially among youths in Singapore, and (ii) understanding youths' expectations in terms of safe online spaces in Singapore.

The Government agrees with the concerns that the Panel has raised. Online harms is an important issue, and a whole-of-society effort is needed to enhance online safety. The Government has strengthened our legislative and regulatory measures to address online safety over the years, and worked with the wider community to enhance public education efforts on how citizens can protect themselves online. The Government will continue working with panel members to explore how the recommendations can build on existing efforts.

Detailed Response to Youth Panel Recommendations

#TECHHACKS

Challenge Statement
How might we strengthen mindfulness and awareness towards online harms on social media among Singaporean youths, and understand their expectations in terms of safe online spaces in Singapore, with the aim of building a kinder, safer, and healthier digital world?

Recommendation 1: An annual survey on the state of online harms on social media amongst youths in Singapore

The Panel recommends an annual survey to monitor online harms among Singaporean youths on social media, and allow consistent data collection and analysis to facilitate trend comparisons over time. The proposed survey is intended to complement existing surveys and efforts in the online space, such as MDDI's Online Safety Poll, while giving space for more focused studies and insights on youth as a key demographic.

Response
The Government recognises the value of collecting consistent data, which includes data on youths and their perspectives towards online harms. The Government will study this recommendation further to determine whether the annual survey is feasible and complementary to existing research initiatives.

Recommendation 2: Introduce a lifecycle-based model to help youths understand online harms

The Panel proposes developing a concise and practical conceptual framework to support youths to understand threat vectors, intervention points, and gain a clearer picture of online harms. The model could cover stages such as (1) Creation and Posting, (2) Amplification and Spread, (3) Exposure and Experience of Harm, (4) Reporting and Moderation, (5) Remediation and Support, and (6) Reintegration.

Response
The Government is open to exploring how it can support the Panel to further develop this model from a ground-up perspective. Having such a framework can help educate youths about the various stages of online harms and provide suggestions on platforms or avenues for help and assistance.

Detailed Response to Youth Panel Recommendations

#TECHHACKS

Challenge Statement
How might we strengthen mindfulness and awareness towards online harms on social media among Singaporean youths, and understand their expectations in terms of safe online spaces in Singapore, with the aim of building a kinder, safer, and healthier digital world?

Recommendation 3: Adopt an accountability-based approach to addressing online harms on social media

The Panel's research revealed that youths often perceive online redressal mechanisms as ineffective, as there is often no feedback or update after a report is made. The Panel proposes developing strategies to promote accountability, trust, and safety on social media, to build youths' trust in online spaces. This includes measures to keep social media platforms accountable in addressing online harms.

Response

The Government supports the intent of this recommendation, which is aligned with MDDI's ongoing efforts to strengthen accountability to address online harms. Under the Code of Practice for Online Safety, designated social media services are required to submit annual reports about measures, systems, and processes that they have put in place to combat harmful content, which provide transparency to users. IMDA published its inaugural Online Safety Assessment Report in February 2025. While the designated social media services have made good efforts to put in place baseline user safety measures, there are areas of improvement, such as responding more quickly to user reports.

Later this year, the Ministry of Law and MDDI will also be introducing the Online Safety (Relief & Accountability) Bill, which will establish a new agency (the Online Safety Commission) so that individuals can get timely help if they encounter online harms. The OSC will be able to help individuals take down harmful material, among its key functions.

Detailed Response to Youth Panel Recommendations

#TECHHACKS

Challenge Statement
How might we strengthen mindfulness and awareness towards online harms on social media among Singaporean youths, and understand their expectations in terms of safe online spaces in Singapore, with the aim of building a kinder, safer, and healthier digital world?

Recommendation 4: Recognise youths as a discrete stakeholder group in shaping the digital space

The Panel proposes involving youths as a discrete stakeholder group in shaping the digital space, such as giving youths a seat at the table when discussing relevant policies. The Panel's view is that youths are digital by default; policies affecting youths' participation in online spaces should thus be youth-by-design, and by-default.

Response
The Government recognises the importance of youths as a discrete stakeholder group that can provide unique perspectives to shape digital policies and contribute to the discussion on online spaces. As a start, a youth representative from the Youth Panels has been appointed to the Media Literacy Council, and the Government will continue to implement this recommendation by exploring other meaningful platforms for youth participation.

As part of SG Youth Plan engagements, MCCY and NYC invite youths and other stakeholders to deep dive into the issue of social media usage and to collectively develop other ideas to address the concerns identified by the Panel.

Detailed Response to Youth Panel Recommendations

#GREENHACKS

Challenge Statement

How might we address the issue of recycling amongst households within housing estates, as despite Singapore's efforts to promote recycling, there remains a significant lack of public awareness about the importance of recycling resulting in a 40% contamination rate?

Panel Overview

The Panel observed that while the Government's continued efforts to promote recycling are commendable, Singapore continues to have a significant recycling contamination rate of 40% and low household recycling rates. The Panel aims to identify ways to increase public willingness to recycle right and effectively, minimising contamination and maximising household recycling rates.

The Government is heartened that the Panel recognises the importance of promoting recycling and reducing contamination rates. We will continue to explore ways to make recycling more accessible and intuitive.

Detailed Response to Youth Panel Recommendations

#GREENHACKS

Challenge Statement
How might we address the issue of recycling amongst households within housing estates, as despite Singapore's efforts to promote recycling, there remains a significant lack of public awareness about the importance of recycling resulting in a 40% contamination rate?

Recommendation 1: Segregated recycling bins

The Panel proposes a phased introduction of segregated smart bins with incentives and accountability measures to reduce contamination of recyclable waste and improve recycling rates. Phase 1 involves piloting segregated bins at neighbourhood recycling corners, framed under the Recycling Right campaign, while future phases could involve incorporating smart features and piloting at a larger scale.

Response
The Government will explore the Panel's recommendation further, as part of overall efforts to promote recycling.

The blue bin commingled recycling approach has been standardised in Singapore since 2011 to make it more convenient for residents to recycle as there is no need for households to sort their recyclables by material type. It has also allowed Public Waste Collectors (PWC) to optimise their operations by reducing the number of trips needed to collect recyclables which would otherwise add to the operating cost, as well as carbon footprint.

The Government is developing complementary consumer-sorted recycling channels to aggregate clean streams of recyclables to raise recycling rates and reduce contamination rates. These include Extended Producer Responsibility (EPR) schemes, which started with the e-waste EPR scheme in 2021, and the upcoming beverage container return scheme in 2026.

The Government is also continuously looking into ways to improve recycling efforts. These include ongoing trials that align with the Panel's recommendation. 800 Super, the current PWC for the Ang Mo Kio-Toa Payoh and Pasir Ris-Bedok sectors, is conducting a trial for smart recycling boxes and lockers. The smart recycling boxes collect paper, plastic, glass, metal cans, and clothing separately while the lockers collect food waste. The system encourages users to sort and recycle, by requiring users to sign up for an account in order to deposit recyclables in the corresponding compartment, and awarding points that can be exchanged for vouchers. The Government also lends support for civil society and community groups that wish to play a part, such as NGO Zero Waste SG, that will pilot a recycling hub pilot with 4 collection bins (for plastic, paper, metal, and glass) at Pioneer, and launch an education campaign for the community to instil proper practices and habits of waste segregation at the household level. This project is supported by the SG Eco Fund. The Government will continue to explore such trials and assess their effectiveness.

Detailed Response to Youth Panel Recommendations

#GREENHACKS

Challenge Statement
How might we address the issue of recycling amongst households within housing estates, as despite Singapore's efforts to promote recycling, there remains a significant lack of public awareness about the importance of recycling resulting in a 40% contamination rate?

Recommendation 2: Simplified labelling scheme

The Panel proposes the introduction of a mandatory physical and/or digital labelling scheme for packaging materials used in consumer products, to address the issue of consumer confusion about the recyclability of materials.

Response

The Government agrees with the underlying principles of the Panel's recommendation to promote consumer education and awareness on what can or cannot be recycled. The Government has embarked on various public education initiatives, including the Recycle Right campaign to educate consumers on whether items are recyclable. In September 2024, NEA introduced a Bloobin AI chatbot where users can describe their item or upload a picture, for advice on whether the item can be recycled and how to do so.

On labelling, the upcoming beverage container return scheme will require pre-packed beverages to be labelled, to help consumers identify beverage products covered under the scheme by a deposit mark on the beverage containers. Consumers can return these containers to designated collection points to obtain a refund of the 10-cent deposit. These beverage containers will be sent for recycling.

While the Government appreciates the potential benefits of recyclability labels for packaging materials, we will have to study the feasibility of implementing this on a broader scale as not all products might be suitable. The diverse range of materials used in packaging, global nature of our supply chains, and limited size of the Singapore market makes standardisation a complex undertaking. Moreover, there is a need to be mindful of the potential impact on various stakeholders, including manufacturers and importers, who may face challenges in adapting to new labelling requirements.

The Government will continue to explore ways to make recycling information more accessible and intuitive for consumers, and welcomes further suggestions from the public on this.

Conclusion

The inaugural Youth Panels were a new initiative that provided the opportunity for youths and the Government to work closely together on important issues. Youth Panel members found value in experiencing the policymaking process and better appreciated the challenges of policymaking, such as engaging with diverse stakeholders and balancing multiple considerations. Government agencies gained new insights into how youths see contemporary issues and strengthened their partnership with youths.

> 66 We take the perspectives of youths seriously in policy, as they are ultimately our future. Giving them a direct voice is key because the youths bring something special to the process – that discontentment with the way things are, the optimism to change things for the better, and the drive to make it happen."
>
> - Mr Kwa Chin Lum,
> Director (Fiscal Policy) Ministry of Finance

> 66 I think giving youths a voice early on in our lives really empowers us to take responsibility for our own future and for the future of our country. If more youths know that we can shape our future, more of us will step up to act on our hopes for Singapore and really make a difference."
>
> - Lim Kai Ning,
> #JobHacks Panel member

The Government remains committed to engaging and partnering with youths on issues that they care about. Building on the Forward Singapore exercise and in conjunction with SG60, MCCY and NYC, together with partners, have started a year-long series of engagements with youths in 2025 to co-develop an SG Youth Plan. The SG Youth Plan will be a five-year action plan created by youths, for youths, and supported by the whole-of-society, to rally everyone to collectively do their part for Singapore and fellow Singaporeans.

MCCY and NYC will review the Youth Panels as part of the SG Youth Plan. The Government will continue to provide more opportunities to hear youth voices, support and empower them to do good for the community, and partner with them to shape Singapore's future. Together, we will build a stronger Singapore for everyone.

How You Can Be Involved

If you would like to share your views, take action, or partner the Government to contribute to a better Singapore, reach out to the National Youth Council (NYC)!

NYC has many available avenues to support you to voice your ideas and turn them to reality. You can visit the NYC website to find out more.

Keep in touch

Follow NYC at **@nycsg** and **@youthopiasg** on Instagram to get the latest news and updates!

List of Youth Panel Leads, Members, and Advisors

#LifeHacks	
S/N — **Name**	**Occupation**
Leads	
1 Amalina Abdul Nasir	Global issues policy manager
2 Marie Teo Bee See	Global government engagement senior advisor
3 Muhammad Nabil Bin Noor Mohamed	Leadership development senior associate
4 Toh Guan Ru	National service full-time
Members	
5 Cheng Guang Hao	Head at non-profit organisation
6 Elijah Chao	National service full-time
7 Ezekkious Loo	Polytechnic student
8 Lauren Angelina Koek Tsui Lyn	Undergraduate
9 Lok Siying	Regional standards specialist
10 Loke Jun Hao	Polytechnic student
11 Mohamad Arshad S/O Khaja Moinudeen	Business development manager
12 Muhammad Iylia Bin Mohammad Shukor	Undergraduate
13 Muhammad Zunnurain Bin Mohamad Zulkifli	Undergraduate
14 Natalie Ng Xin Yi	Polytechnic student
15 Ng Jing Xuan	Undergraduate
16 Peh Gao Xian	Civil servant
17 Tan Wei Liang Darrius	National service full-time
18 Teng Kaixin	Junior college student

List of Youth Panel Leads, Members, and Advisors

#LifeHacks		
S/N	**Name**	**Occupation**
Members		
19	Wee Su-Ann	Legal associate
20	Xian Yi Dusadidecho Alicia	Design sector director
Advisors		
21	Francesca Phoebe Wah	Head of Department (English), MOE school and Co-founder, BLESS (NGO)
22	He Ruiming	Co-founder, The Woke Salaryman

List of Youth Panel Leads, Members, and Advisors

S/N	Name	Occupation
#JobHacks		
Leads		
1	Attiya Ashraf	Climate change and sustainability services manager
2	Li Yat Hay Marcus	Legal counsel
3	Muhd Afzal Abdul Hadi	Learning facilitator
4	Pang Ren Jie, Adriale	Undergraduate
Members		
5	Alister Ong	Diversity equity inclusion lead
6	Adam Ahmad Samdin	Economist
7	Brian Lee Jun Hui	Polytechnic student
8	Chan Hui Min, Hazel	Research manager
9	Edric Wong Weng Kit	Finance sector product specialist
10	Ho Jon Yew	Secondary school student
11	Koh Wen Hao Damien	ITE student
12	Lee Jing Ching	Undergraduate
13	Lee Sze-Chyi Claire	Secondary school student
14	Lim Kai Ning	Co-founder and CEO, The Courage Chapter
15	Mohammed Aizam Bin Abd Rahman	Undergraduate
16	Muhammad Khairul Rusydi Mohamad Dermawan	Co-founder and CEO, Reactor School
17	Nayla Cyrill Sabrinanda Riza	Polytechnic student
18	Nur Aliyah Binte Jefri	Polytechnic student

List of Youth Panel Leads, Members, and Advisors

#JobHacks		
S/N	**Name**	**Occupation**
Members		
19	Nur Hazeem Bin Abdul Nasser	Undergraduate
20	Ong Cheng Boon Perren	Polytechnic student
21	Reann Khor Xin Lei	Secondary school student
22	Safafisalam Bohari Jaon	Sustainability and social impact consultant
23	Sharmishta Sivaramakrishnan	Health sector manager
24	Suhaimi Bin Zainal Shah	Civil servant
25	Yeo Eng Way	Senior finance executive
26	Yeoh Wan Qing	Full-time employment
Advisors		
27	Lim Ee Ling	Startup founder and CEO, Wavesparks
28	Yuvan Mohan	Public Policy and Government Relations Country Head, Lalamove

List of Youth Panel Leads, Members, and Advisors

#TechHacks		
S/N	**Name**	**Occupation**
Leads		
1	Dev Bahl	Product manager
Members		
2	Azlin Zubairah Binti Mohamad Johari	Community partnerships executive
3	Ben Chua	Undergraduate
4	Bryan Ong Cae Tze	Junior college student
5	Cameron Tan Shi Ern	Undergraduate
6	Charmaine Tan Shiyan	Junior college student
7	Chin Char Min	Business development manager
8	Chong Chi Hoong	Polytechnic student
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11	Katherine Chua Chang Kun	ITE student
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14	Lien Hui Xuan	Undergraduate
15	Luo Chen Jun	Civil servant
16	Malcolm Ngio Yew Kiat	National service full-time
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4	Preston Wong	Co-founder, treatsure and university lecturer
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Supporting Agencies and Partners

We would like to acknowledge the following agencies and partners who supported the inaugural Youth Panels initiative:

S/N	Agency/Partner
1	800 Super Waste Management Pte Ltd
2	Economic Development Board
3	Enterprise Singapore
4	Google Singapore
5	Milieu Insights
6	Ministry of Digital Development and Information
7	Ministry of Education
8	Ministry of Finance
9	Ministry of Manpower
10	MoneySense Council/Monetary Authority of Singapore
11	Ministry of Social and Family Development
12	Ministry of Sustainability and the Environment
13	National Crime Prevention Centre
14	National Environment Agency
15	NTUC FairPrice Group
16	Open Government Products
17	SembWaste Pte Ltd
18	SG Her Empowerment
19	SG Recycle
20	Singapore Environment Council
21	Verian Singapore
22	Workforce Singapore
23	Zero Waste SG

#LIFEHACKS

Supporting Singaporeans'

Financial Resilience Journeys through

Financial Literacy and Emergency Savings

Recommendations by #LifeHacks, a youth panel under the National Youth Council

#LifeHacks Recommendations

Executive Summary

Cost-of-living is a concern for Singaporeans, including the youth population. More than 9 in 10 Singaporeans aged 21 to 39 felt personally affected by the rising cost-of-living, according to an Institute of Policy Studies (IPS) survey conducted in November to December 2022. A poll conducted by TODAY also found that cost-of-living was the top source of mental health struggles for Singaporean youths aged 18 to 35. This policy paper developed by the #LifeHacks Panel aims to outline potential ways we may support Singaporeans on these concerns and on their journeys to building and maintaining financial resilience. Through a year-long process of research and engagement across stakeholder groups from youth themselves to the broader population and government agencies, we have focused on enhancing financial literacy and building emergency savings. Our goal is to help identify ways to make financial decision-making easier for youth and to identify tangible actions that may be useful towards building long term financial resilience.

Methods
The #LifeHacks Panel conducted a thorough investigation into the concerns of Singaporean youth as they pertain to financial security. Through surveys and focus group discussions with over 1,000 youths, the panel sought to uncover the barriers and opportunities to better raise youth's financial literacy and financial resilience. Some of our key findings include:

Results
1. **Financial Literacy Gaps:** The panel found that a significant portion of youths lacked good financial habits, with disparities across educational and income levels. According to a nationally representative survey conducted by Milieu Insight, 63% of youths did not agree that they were financially savvy and 61% of youths did not agree that they were confident of the financial decisions they made in life.

2. **Demand for Improved Resources:** While most youths acknowledged the importance of financial literacy, many felt that current resources were inadequate. Youths generally felt that resources present an overwhelming amount of information, and hoped for more financial literacy resources from authoritative sources, especially finance-related government bodies. Only 37% believed existing initiatives were sufficient for effective money management.

3. **Barriers to Engagement:** Participants identified challenges such as time constraints and difficulty accessing reliable information as barriers to improving their financial literacy.

Recommendations
To address these findings, the panel proposes two key initiatives:

1. **Financial Literacy Excellence Guide (FLEX):** A centralized digital resource designed to provide tailored financial guidance on budgeting, saving, investing, and managing debt. FLEX aims to simplify access to diverse financial information and make such information more engaging through personalized content and interactive features. FLEX also helps to share proactive information where necessary, in preparation for life milestones which can often be a young person's first foray into saving and spending for large ticket items such as housing or further education.

#LifeHacks Recommendations

Executive Summary

2. **Starter Savings Plan (SSP):** An incentive scheme targeting lower-income Singaporeans to encourage the building up of emergency savings. The SSP would facilitate automatic savings deductions and offer higher interest rates compared to standard accounts, along with milestone rewards to encourage the habit of consistent saving.

Conclusion

Underpinning the **FLEX guide** is the idea that enhancing financial literacy can empower youth to navigate life milestones better. With greater knowledge surrounding financial planning, youths can have greater peace of mind over cost-of-living - and hence be more confident in their pursuit of their life goals.

On the other hand, the **Starter Savings Plan**, targeted at lower income households, can foster a more financially resilient population capable of adapting to living costs, unpredictable life events, or an economic downturn.

Financial literacy has the potential to change people's lives. Learning how to manage money has direct, long-term consequences on an individual's long-term wellbeing. Financial literacy will affect how citizens spend, save, earn or even vote. As such, our proposed recommendations focus on supporting Singaporeans to achieve this with knowledge and an incentive scheme.

#LifeHacks Recommendations

Background

The rising cost-of-living in Singapore is a concern for Singaporean youth. As such, our #LifeHacks Panel aimed to investigate the specific concerns around financial security to then be able to propose possible solutions.

The #LifeHacks panel brought together a diverse group of young adults aged 18 to 34, including students and early-career professionals, with whom the topic of financial security in Singapore resonated deeply. In sharing our own experiences, as well as ground sensing and deep engagement across a wide range of stakeholders, we sought to gain a comprehensive view of the problem space to then identify ways to empower young people to make informed decisions about their financial security. Our goal is to support them in building long-term financial resilience. Engagements included focus group discussions with students from tertiary institutions, and a survey of 1000 youths across Singapore to understand the priorities and understanding young Singaporeans had with regards to financial matters.

We supplemented this research with engagement with key agencies in Singapore including the Ministry of Finance (MOF), the Ministry of Social and Family Development (MSF) and MoneySense, the national financial education programme. Our goal was to gain a more comprehensive understanding of the existing policies in place and the considerations and trade-offs when thinking about how to tackle challenges faced by Singaporeans when it comes to their financial security. These perspectives were important in helping us identify unaddressed gaps and in shaping our policy nous.

From these engagements, we got a sense of the perspectives that different stakeholders have. These included younger Singaporeans who had to balance their finances to plan for their future, and government agencies who had to manage competing priorities and provide assistance to Singaporeans in a fiscally sustainable manner.

We realised that there were many policies in place to help Singaporeans cope with cost-of-living concerns and build their financial resilience, and that communicating these policies was key to assuring Singaporeans that help is available. Moreover, we understood that cost-of-living issues are cross-cutting, stretching across different parts of life. As such, we felt that financial literacy is a key part of the solution to achieving financial security.

Ultimately, our panel landed on the problem statement; how might we improve financial literacy among youth and enable them to take necessary action to improve their long-term financial resilience in the present cost-of-living climate?

#LifeHacks Recommendations

Approach

The Panel gathered data through the following stages:

1 The Panel did an initial literature review to explore the current state, challenges, and policies that address financial security.

2 The Panel conducted a survey with 1000 youth from aged 18 to 34 to discover what their concerns were and where the issues lay with cost-of-living and financial security. The Panel also did our own ground sensing with our networks of friends and family, and with student leaders from Singapore's autonomous universities during the University Leaders Dialogue.

3 Based on the survey results, the Panel came together to brainstorm a set of initial solutions. These solutions and preliminary findings by the Panel were tested during focus group discussions with youth held on 29 June 2024.

4 At the Youth Policy Forum held on 24 August 2024, the Panel presented our solutions to the public and gathered feedback and views to ensure we captured a wide range of perspectives and covered any blind spots.

5 Throughout this process, the Panel also engaged with key stakeholders in the government, including the Ministry of Finance (MOF), MoneySense and Ministry of Social and Family Development (MSF) regarding their views on the Panel's proposed solutions.

#LifeHacks Recommendations

Strengthening Financial Literacy Among Singaporean Youths (aged 18-34)

Research Findings

We first conducted a literature review to understand the context and state of financial security in Singapore. Through the literature review, we gathered that financial literacy cuts across key areas of concern, including savings for healthcare, housing and the financial adequacy of lower-income workers. The Panel decided to engage Milieu Insight to conduct a nationally representative survey of 1000 youth to validate our hypothesis that financial literacy was a potential opportunity space for Singaporean youths under financial security.

We found that most youths lack good financial habits. At least 60% of youths perceive themselves as lacking sufficient financial acumen and judgement. Only 45% of youths actively apply their knowledge of financial literacy into their financial plans and only 44% know the different types of financial products available to them to plan their finances.

While most youth believe that financial literacy is important, more than half of youth surveyed find that current financial literacy resources have a limited impact on empowering youths to manage their finances effectively. Only 37% of youths agree that existing initiatives are sufficient, while 42% of youths agree that current financial literacy programmes are useful and practical.

Importantly, youths believe that relevant and credible financial literacy materials can be made more accessible. Only 42% of youths agree that it is easy to search for relevant financial literacy information, and a relatively high proportion of youths (49%) believe that financial literacy is complicated to understand.

Survey results also suggest that MOF or MoneySense could play a bigger role in the direct provision of financial literacy resources. A significant proportion of youths (60%) also believed that financial literacy resources would be credible if it was backed by a finance-related government body, such as MOF. This was a higher proportion than schools / educational institutions (44%), banks (42%) and a non-finance-related government body like the Ministry of Education (37%).

We also engaged youths in-person through focus group discussions to understand the barriers, challenges, and motivations to engage in financial literacy. Focus group discussions also helped us to test our ideas, to make financial literacy more relevant, specific and targeted to different life stages and income groups.

Through our focus group discussions, we found that most participants felt that financial literacy was important, with a key driver being financial independence. **Challenges to attaining financial literacy included a lack of time, reliable and accurate sources of financial information.**

Crucially, participants defined 'good financial content' as information that was easy-to-understand, interactive and personalised. Examples suggested include localised information, real case studies, success stories of those close to their age, bite-sized content, gamification activities and workshops. The participants also appreciated guided support to take concrete actions towards achieving financial well-being.

#LifeHacks Recommendations

Strengthening Financial Literacy Among Singaporean Youths (aged 18-34)

Recommendation

Through our literature review, we encountered many policies in place to help Singaporeans cope with the cost-of-living. Nonetheless, through our survey, we found that there were barriers to accessing the full suite of information available regarding these policies. We felt that communicating these policies was key to assuring Singaporeans that help is available.

From our engagements with agency partners, we also became aware of a gap in helping youth to access financial planning information, and in encouraging youth to engage with such information and plan ahead at an earlier age. For instance, youths who intend to purchase a home at an earlier age would benefit from earlier exposure to financial planning resources, such that they can comfortably meet their desired life goals. We realized that targeting Singaporeans based on their age and stage of life with information on financial planning could also be done more effectively.

Moreover, we understood that cost-of-living issues are cross-cutting, stretching across different parts of life. As such, we felt that the fundamental solution to achieving financial security was financial literacy.

Financial Literacy Excellence Guide (FLEX)

Our key recommendation to improve broad-based financial literacy amongst youth is a Financial Literacy Excellence Guide (FLEX) that consolidates financial information. The purpose is to provide a central resource that youth may refer to when planning for long-term financial goals. It will cover essential topics such as budgeting, saving, investing, and managing debt, presented in an accessible and engaging format.

FLEX could be a digital resource (e.g. an application or website), to enhance accessibility to youths. We designed a prototype to illustrate three principles underpinning FLEX's design. **The prototype may be found in Annex B.**

1) The guide would be **designed around milestones in life**. Adopting a "life cycle" mindset when designing the guide would ensure that the guide is useful to people at different ages and stages in life.

2) The guide would be **personalised** to the individual. A potential modality for this is if the guide takes the form of an app. Users can sign-in via SingPass, so that financial information like their monthly income and age can be used to provide advice based on their own financial circumstances. Further exploring can be done to leverage new technologies such as AI to aid in the personalisation of the app to users.

3) The guide should be a **one-stop shop**. There are many disparate sources of information, including websites by different government agencies like the Housing and Development Board (HDB), Central Provident Fund Board (CPFB) and MoneySense. The guide should amalgamate these sources of information and simplify financial planning.

#LifeHacks Recommendations

Strengthening Financial Literacy Among Singaporean Youths (aged 18-34)

We hope that FLEX will equip youths with the knowledge and skills they need to navigate their financial futures with confidence.

Feedback from the Youth Policy Forum was generally positive. Participants generally felt that FLEX would make financial planning easier. To further improve FLEX's effectiveness, suggestions included:

1) **Expanding the remit of FLEX to include budgeting.** A respondent shared that youths may currently use Excel sheets or Notion to budget, which is tedious. Other budgeting applications like YNAB (You Need a Budget) are limited by paywalls. Budgeting features could include an option to link one's bank account to the app such that each digital transaction is automatically recorded.

2) **Changing the mode of FLEX to Telegram Bots.** A respondent shared that many youths currently use Telegram. Using Telegram to communicate with youths would allow for easier financial planning with less 'friction', compared to creating an application or website.

3) **Further scoping the information presented to each user.** A respondent suggested that FLEX should be highly personalised, to prevent youths from being 'overloaded' with information. There needs to be an appropriate balance between the guide being comprehensive and targeted.

#LifeHacks Recommendations

Building Emergency Savings Amongst Lower-income Singaporeans

Research Findings

SMU-IPS Household Needs Study: 16% of Singaporeans do not have 3-months of emergency savings and 24% do not have 6-months of emergency savings. This is despite 88-94% of Singaporeans classifying having emergency savings as essential to lead a 'normal life[1]' in Singapore.

Relationship between Family Assets (including Savings) and Mental Health[2]: Research in Europe has also found that family assets may play a significant protective role against depression, loneliness, and a decreased quality of life.

Recommendation

Starter Savings Plan (SSP)
Our recommendation would be to find ways to encourage and support lower-income Singaporeans *(e.g. the bottom 25% of Singaporeans by household income)* **to build up their savings.**

A possible initiative could be a Starter Savings Plan (SSP). SSP could be an incentive scheme to encourage and support lower-income Singaporeans to inculcate the habit of saving ("paying yourself first") and build up their emergency savings.

The current landscape of assistance schemes that provides support for lower-income Singaporeans aim to help them better manage costs for specific day-to-day living activities. This includes U-Save rebates for utilities, the Workfare Transport Concession scheme for public transport, subsidies for medical needs and ComCare as a social

safety net. We noticed that there may be an untapped opportunity to formulate an incentive with the key objective of encouraging the build up of emergency savings and making it as easy as possible to take active steps to do so. This is especially vital to relieving the stress that financial concerns can place on individuals. Even a small emergency fund would provide some liquidity and buffer during unforeseen emergencies or events leading to loss of stable income.

In planning the starter savings plan, we had the following key considerations:

1) **Low barriers to entry:** We wanted a system that was hassle-free, such as being automated and involved regular deductions so that less time would need to be invested to set up an account and to start saving. We also wanted to remove any upfront costs, such as administrative fees when every dollar counts (e.g., $2 per application or redemption of Singapore Savings Bonds).

2) **Liquidity with safeguards:** We believe in balancing between full liquidity (e.g., withdrawals at any time without any checks) and no or minimum liquidity (e.g., money is locked in for an indefinite period, only allowed to be used for limited purposes with an overly stringent process by a third party to assess what is defined as an "emergency"). For example, the principal amounts set aside by the user to accumulate savings in their "SSP accounts" (assume scheme will be implemented in partnership with banks and leveraging on their scheme operational mechanisms). It

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[1] An item or activity is deemed essential for normal life if ≥ 50% of the sample (who indicated either a 'yes' or 'no' to the question on whether an item was essential) agreed it was essential.
[2] Do All Savings Matter Equally? Saving Types and Emotional Well-Being Among Older Adults: Evidence from Panel Data (2023)

#LifeHacks Recommendations

Building Emergency Savings Amongst Lower-income Singaporeans

can be liquid and withdrawn at any point in time. However, the incentives provided can have a suite of restrictions which could come in many different formats, including but not limited to:

a) "Top-ups" to the user's CPF Ordinary Account, which could follow current CPF-OA restrictions

b) "Top-ups" to the user's Singapore Savings Bond account, which will follow the current SSB restrictions such as withdrawals only once a month and only in multiples of $500 up to the amount invested)

c) "Top-ups" to a ring-fenced sub-account within the user's SSP accounts, with withdrawal of incentives subject to review (e.g., by a social worker). Withdrawal of the user's principal amounts saved will have no restrictions.

3) **The SSP could disburse incentives at regularly-timed intervals at periods** (such as 1st month, 3rd-month, 6th-month, 1st-year) to reward, encourage and build the habit of continual saving. We propose having a short time period for all rewards as lower-income Singaporeans tend to have lower disposable incomes available and hence have a much harder time setting aside funds to build up their emergency savings. Shorter interval periods for the disbursement of rewards would make it more attractive for them to sign up for SSP.

a) With low cash flows on a monthly basis, it is important that users - particularly the lower income segments - feel rewarded and gratified for taking

the difficult step of setting aside that portion of their cash to save up for rainy days ahead. Over time, the shorter interval periods could be incrementally increased to slightly longer periods (e.g. disbursements every three months in the first two years of starting a SSP account to disbursements every four months in the next two years), which could slowly expose users to the compounding effect of benefits and rewards in this scheme of setting aside cash.

4) **SSP could have higher 'interest rates'.** In principle, the interest rates should be higher than that of a standard savings account which is usually at 0.05% in order to maintain its appeal. It should also not involve too much friction (e.g., requiring account holders to jump through many hoops e.g., spending requirements for existing high-interest savings accounts). One possible idea was the pegging of interest rates to low-risk financial products, such as the Singapore Savings Bonds and T-Bills, to ensure that the savings hedge against inflationary pressures. Philanthropic organisations and/or donors could also provide additional milestone rewards boosts (e.g. a lump sum after two years of saving with the SSP) for identified users of the lower-income segment. This is meant as a differentiating factor for the SPP, from a user saving and/or investing with other low-risk, safe products like the Singapore Savings Bonds and T-Bills.

The SSP could be an interagency effort. MSF and Social Service Agencies (SSAs) could tap on family coaches and social workers to engage lower-income Singaporeans to

Building Emergency Savings Amongst Lower-income Singaporeans

pilot the scheme and journey with those who could take the next step in building up their financial health with the SSP. This will also be useful in learning what works and can be improved to maximise its efficacy. A relevant Government agency would need to be a lead administrator of the scheme, coordinating amongst participating banks and donors and/or philanthropic organisations in implementing the SSP (e.g. monitoring mechanisms, top-ups and disbursements processes, etc). Participating local banks could partner with the government to provide a high interest savings account to lower-income Singaporeans, and donors could top-up by providing incentives, similar to the ComLink+ Progress Package on Debt Clearance.
SSP could be scaled-up in the long-run, and could be an effective gateway to introduce stable, low-risk investing to those with less financial means and knowledge.
Feedback from the Youth Policy Forum was generally positive. Participants generally felt that the SSP would help Singaporeans build up emergency savings. To further improve SSP's effectiveness, suggestions included:

1) **Incentivising automated payroll deductions/GIRO for contributions to SSP.** Some also suggested integrating SSP (fully flexible or semi-flexible withdrawals) as a new account within CPF (with a certain limit on the maximum amount), with monthly contributions flowing to SSP. Some suggested this may not be mandatory too and could be an opt-in programme.

2) **Incentives being provided in different forms.** Similar to Supplementary Retirement Savings (SRS) accounts, there was a suggestion to explore incentives

through tax relief instead of just cash. Some also suggested having other incentives (e.g., NTUC vouchers) as part of gamified challenges that participants can take part in.

3) **Small Community Savings Groups.** Similar to microfinance institutions, individuals can join small groups where each member will contribute a fixed amount each month and take turns to receive the savings from the entire group each month. This strategy adopts social pressure to encourage individuals to save. Some also suggested leveraging on the media for positive/ negative reinforcement (e.g., highlight that X% of Singaporeans have achieved 3 - 6 months of emergency savings).

4) **Engage lower and middle-income Singaporeans to better understand their challenges with building up emergency savings.** Some respondents suggested for the panel to have further engagements with lower and middle income Singaporeans and social workers as they note that some may be forced by their circumstances to focus on the present instead of the future (i.e., consuming today instead of saving for tomorrow). Further engagement with the main target segment of lower-income Singaporeans is necessary, for the implementing parties to understand the right levels to peg the incentives and disbursement periods to achieve the policy objective (i.e. encouraging the financially-pressed to build up financial health by saving).

#LifeHacks Recommendations

Building Emergency Savings Amongst Lower-income Singaporeans

Reflections on Youth Panel Journey

Diving into the challenges, concerns and opportunities in the financial security space has been a deeply meaningful process for all of us. Many of the Panel members ourselves have experienced directly or through peers and family members what it's like to be concerned about financial security and cost of living. Understanding ground sentiments through speaking to people from different backgrounds gave us much to think about. The Panel was encouraged to be critical, yet specific in our thought process, from crafting a problem statement to asking questions that gleaned new insights in Focus Group Discussions with other Singaporeans. The Panel also had to consider trade-offs, which only grew more complex as we engaged across stakeholder groups and in honouring the diverse aspirations of Singaporeans. We also learnt a significant amount about the efforts that have been made to support the financial security of Singaporeans through safeguards like CPF, the HDB system, and sound MAS monetary policy. We are deeply grateful for these opportunities and hope to continue our engagement with the government and more Singaporeans to shape our future together.

Conclusion

The #LifeHacks Panel's report presents two proposals aimed at enhancing financial resilience among Singaporean youth and lower income Singaporeans: the Financial Literacy Excellence Guide (FLEX) and the Starter Savings Plan (SSP). FLEX is designed as a comprehensive digital resource that consolidates essential financial information, making it accessible and engaging for young people. It aims to empower them with the knowledge and skills necessary for effective financial planning, covering critical topics such as budgeting, saving, investing, and managing debt. Meanwhile, the SSP seeks to incentivize Singaporeans, especially lower-income Singaporeans, to build emergency savings through a structured savings plan that rewards consistent saving behavior and provides higher interest rates than standard accounts. Together, these initiatives aim to bridge the financial literacy gap and foster a culture of saving among youth, ultimately contributing to their long-term financial security.

Looking ahead, future research could explore the effectiveness of these initiatives in real-world applications, particularly in measuring improvements in financial literacy and savings behavior among participants. Additionally, further ideation could focus on enhancing FLEX through personalized content delivery methods, ensuring that it remains relevant and engaging for diverse youth demographics. Collaborative efforts with educational institutions and private sector partners could also be pursued to expand outreach and engagement strategies.

#LifeHacks Recommendations

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Acknowledgements
The Panel would like to express our deep gratitude and thanks to several individuals for supporting us through this process. We have learnt so much from you. Thank you to Ms Jaishree Thangaraj, Ministry of Culture, Community and Youth (MCCY); Mr Song Chi, and Ms Gracia Ong, National Youth Council (NYC); Mr Hor Chor Kiat, Verian; Mr Kwa Chin Lum and Ms XiaoJian, Ministry of Finance (MOF); Mr Jeremy Huang, Ministry of Manpower (MOM); and various agency representatives from MOF, MOM, MAS and MoneySense.

Disclaimer & Confidentiality
The report may be circulated within the government, and used as needed. For any queries on our Policy Paper, the Panel may be contacted through our Leads or the MCCY staff.
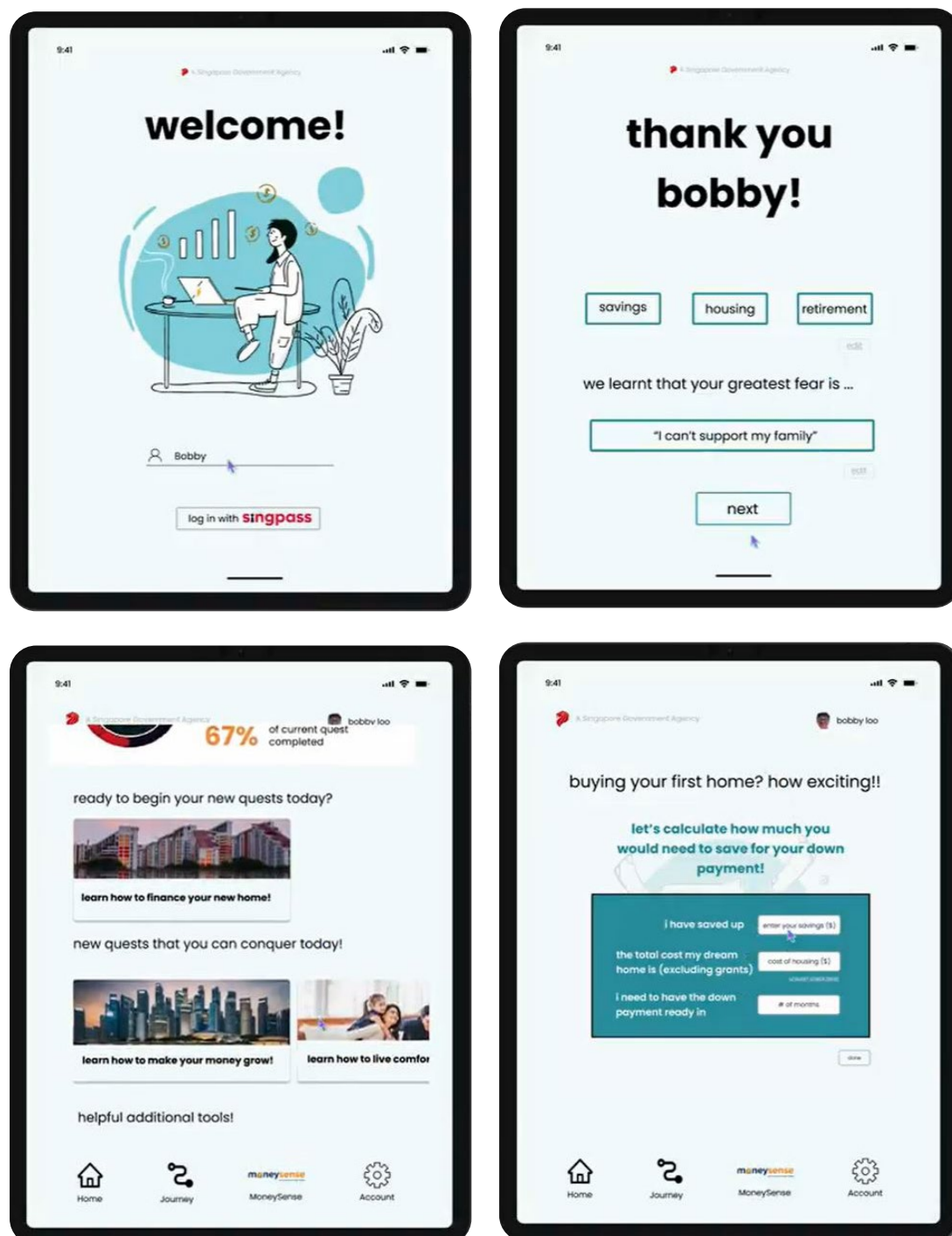
#LifeHacks Recommendations

Annexes

Annex A - Survey and FGD Results

Surveys and focus group discussion results available upon request. Please direct requests to youthengagement@nyc.gov.sg.

Annex B - FLEX Guide Sample Prototype

#JOBHACKS

A SEA of Opportunities: #JobHacks Policy Recommendations for

Youth Job Readiness in Southeast Asia

Recommendations by #JobHacks, a youth panel under the National Youth Council

#JobHacks Recommendations

1. Abstract

The #JobHacks Youth Panel comprises students and young working adults (YWAs), bringing together youths from diverse backgrounds and life stages (hereafter referred to as "the Panel"). Members of the Panel have either embarked on internships locally/abroad, recently secured jobs, personally experienced retrenchment, or are currently exploring career pathways.

Surveys and focus group discussions (FGDs) conducted by the Panel highlighted youths' anxieties over their job readiness. Moreover, there is an underappreciation of opportunities beyond Singapore, particularly in the growing Southeast Asian markets, due to differences in pay expectations and a lack of interest.

The Panel was particularly struck by two key findings: 62% of respondents reported feeling "somewhat/very/extremely stressed" about their future job prospects, and 75% expressed being "somewhat/very motivated" to step out of their comfort zones to improve these prospects. These insights highlighted the potential of tapping on youths' openness to address their career anxieties, by encouraging the exploration of overseas opportunities in Southeast Asia (SEA).

This policy paper will cover three themes: **Awareness, Financial Accessibility, and Partnerships.** These themes address the challenges youths face in taking up overseas opportunities in SEA, and some gaps in Singapore's career development ecosystem.

#JobHacks Recommendations

2. Background Context of the #JobHacks Youth Panel's Policy Paper

2.1 Definitions

The definitions of terms used in this paper are as follows:

- "Youths" refers to current students in any of the following schools in Singapore: secondary school, junior college, polytechnic, institute of technical education (ITE) or university. This paper does not propose solutions targeted specifically at Young Working Adults (YWAs), as they are at a different life stage with distinct challenges which require separate solutions.

- "Job Readiness" refers to the extent youths are equipped with the necessary tools and resources to enhance their skills and confidence, such that they are ready to meet the requirements of the specific employment they are seeking or aspiring towards.

- "Economic Opportunities" refers to overseas programmes and internship opportunities that enable youths to visit or temporarily work in a SEA country.

- "Educational Institutions" refer to secondary schools, polytechnics, Institutes of Technical Education (ITEs) and universities.

- "Panel Survey 1" refers to the survey conducted by Milieu with 1000 youth respondents.

- "Panel Survey 2" refers to the second survey conducted by the Panel to gather more data on one of the themes of "Financial Accessibility" from 32 youths from Institutes of Higher Learning (IHLs).

2.2 Objectives of this Policy Paper

2.2.1 Youth Aspirations and Career Health

As youths navigate their life goals, the Panel believes it is essential to help them establish long-term aspirations, even if these evolve. Well-grounded aspirations provide a foundation for building toward youths' desired futures.

This policy paper aims to support youths in this journey by:

- **Empowering youths** through greater visibility of, and access to, opportunities that enhance job readiness

- **Shifting mindsets** to foster greater appreciation for SEA's cultures, economic possibilities, and prospects

- **Encouraging investment in personal growth**, even if it involves short-term sacrifices, such as forgoing some immediate financial gain from more lucrative opportunities

- **Levelling the playing field** by alleviating bread-and-butter concerns to free up mental bandwidth for youths to focus on their aspirations, think more long-term, and be more intentional with their career development

Through the aforementioned efforts, the Panel believes that youths can improve their career health and lay the groundwork for professional success.

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2. Background Context of the #JobHacks Youth Panel's Policy Paper

2.2.2 Harnessing the potential of SEA

Beyond youths' aspirations (which are more inward in nature), the Panel also wanted to explore the external forces that can help youths in their professional development. Currently, numerous solutions and opportunities are already available for youths. As such, this paper is focused on building upon existing efforts, rather than proposing entirely new solutions. Nevertheless, the Panel finds that existing solutions can be improved (the reasons will be elaborated on in subsequent sections), so that youths can better navigate and take up overseas opportunities in SEA.

2.2.3 Strong alignment with targets set out by the Ministry of Education

The Ministry of Education (MOE) has set an objective for at least two-thirds of students to have at least one overseas experience by the time they graduate from formal education. These opportunities are provided across various educational institutions. This paper aims to augment existing overseas programmes by ensuring that youths have access to a wide range of resources and networks, regardless of the education institution they are enrolled in.

2.2.4 Greater focus on SEA

The Panel acknowledges that countries beyond SEA also provide beneficial experiences for youths. However, the Panel has chosen to focus on SEA because a sizeable proportion of youths hold negative perceptions of SEA Economic

Opportunities, despite the region's positive economic outlook. While these perceptions have improved over time, there is still more to be done to encourage youths to appreciate the value that work experience in SEA can offer.

Among businesses, there is a strong perception that SEA markets present significant growth opportunities. According to a survey by the Singapore Business Federation, "85 per cent of businesses engaged in the region in 2023 were showing a growing interest in Asean, beyond the American and Chinese markets" (The Straits Times, 2024). Vietnam, Indonesia and Thailand are the top three markets for business expansion, while Malaysia and Indonesia are the top two markets where Singaporean businesses have an overseas presence (Singapore Business Federation, 2024).

2.2.5 Engaging youths at an earlier stage of their career journeys

There are several existing programmes which provide overseas opportunities to students, YWAs, businesses, and employers. These include:

1. the Asia-Ready Exposure Programme (AEP) by the National Youth Council (NYC),
2. the Overseas Markets Immersion Programme (OMIP) by Workforce Singapore (WSG),
3. the Global Ready Talent Programme by Enterprise Singapore (EnterpriseSG), and
4. several other policies, programmes, and funds by various government agencies, which the Panel will not list exhaustively here.

2. Background Context of the #JobHacks Youth Panel's Policy Paper

Apart from AEP, most programmes target youths at later stages of their lives (e.g. when they are in university or have already started working).

Hence, this paper was developed with the Panel's strong intent to help youths establish their aspirations and seed interest in SEA at an earlier stage.

2.2.6 Reframing the false dichotomy between "staying local" versus "going global"

During the Youth Policy Forum (YPF), the Panel noticed considerable pushback against its proposal to encourage Singaporean students to embark on an overseas internship in SEA.

However, the Panel would like to clarify that "staying local" and "going global" are not mutually exclusive. The Panel is not, for instance, advocating for young Singaporeans to migrate overseas permanently. Rather, the Panel endorses the fact that committing to (and completing) a short, three-month internship in SEA can enhance the versatility and open-mindedness of our young Singaporean workers. This, in turn, improves their career prospects and increases the agility and attractiveness of our local-but-Asia-ready workforce.

The Panel believes that Singapore stands to benefit from, rather than be harmed by, youths venturing overseas for a few months or years. The Panel does not intend to prescribe the duration of time youths should remain overseas, as the optimal length differs from person to person. Some youths may find that a few years in SEA is most beneficial for their career development, while other youths may prefer a shorter duration of a few months, weeks or even days, depending on their circumstances. Regardless of the exact duration, the Panel advocates for better support to help youths pursue these overseas stints.

Furthermore, our Panel also acknowledges that in the earlier stages of youths' journeys, "local-based internationalisation programmes" — a term borrowed from MOE's Trips for Internationalisation Experience (TIE) Fund — can help them become more globally minded and ready, even without physically leaving Singapore. Local-based internationalisation programmes can include:

1. cultural exchanges, where Singaporean students interact with their peers in SEA virtually, or host them as guests in their schools, and

2. virtual internships, where youths experience working in companies/organisations that do not have operations solely in Singapore.

However, the Panel believes that local-based internationalisation programmes should serve as a stepping stone towards overseas experiences. It remains valuable for youths to physically travel to other SEA countries, especially in the later stages of their journeys.

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2. Background Context of the #JobHacks Youth Panel's Policy Paper

2.2.7 Reframing credentialism and the internship rat race

The following trends, if pursued to a limited degree, may spur healthy competition and drive youths to strive for excellence (Mothership, 2023). However, if overdone, they may do youths more harm than good:

1. Frequently comparing oneself to others on LinkedIn (CNA, 2023)

2. Internship stacking: rushing to complete multiple internships before graduation, in hopes of landing a "dream job" (Bloomberg, 2024)

3. Pursuing multiple side hustles on top of full-time studies or a full-time job (CNA, 2023)

4. Other examples of high levels of competition in one's education, career, etc. (The Straits Times, 2024)

This paper explains in detail the Panel's considerations in encouraging youths to consider overseas opportunities and recommendations on how to operationalise this. However, precisely because the Panel is encouraging youths to, for example, pursue an overseas internship, against a backdrop of internship stacking (CNA, 2024), hustle culture (CNA, 2018), burnout (The Straits Times, 2024), and worsening youth mental health (The Straits Times, 2024), it is important for the Panel to explain its perspective on these trends that have been reported in mainstream media.

The Panel reiterates its position that it is unhealthy for youths to chase after career development at all costs. Instead, a healthy balance between one's mental health, self-actualisation, personal satisfaction and fulfilment, the pursuit of one's passions and aspirations, and professional development should ideally be struck (Forbes, 2024).

It is important to remember that youths are still in the early stages of their developmental journey, and hence should not merely see their career trajectory as a means to financial ends, but rather also see their career as a way to pursue their passions and aspirations, and derive a personal sense of fulfilment and self-mastery (The Straits Times, 2024).

The Panel encourages youths to take up overseas opportunities but acknowledges that this may not be appropriate for every youth. Pursuing overseas opportunities is just one of several possible ways to improve one's job readiness and career health, and the Panel does not claim that it is the best way or the only way.

The Panel makes recommendations to reduce some impediments that some youths may face due to their financial circumstances. However, youths should also take the time to reflect on whether an overseas opportunity makes sense for them given their specific circumstances, and they can even consult trusted adults like their parents, guardians, and MOE's Education and Career Guidance (ECG) counsellors on this matter. This is also where the recommendations under the Awareness pillar can be leveraged, for

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youths to understand the nature of various opportunities, to discern which is most fitting for each individual.

The overseas opportunities raised by the Panel should be pursued only insofar as they remain an opportunity for constructive personal and career development for a youth, that helps them build their self-confidence, skills, and experience.

If a career development opportunity is more detrimental to a youth's mental health and self-confidence, than it is constructive and empowering, then it should not be blindly pursued. Instead, a deeper investigation is required, into the environmental factors which lead youths to view their career development as dreaded competition, rather than a process of growth that they can look forward to. The Panel is unable to conduct such an extensive investigation within the constraints of this paper but hopes that this will serve as the start of a wider societal conversation.

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3. Driving Forces in a Complex Job Environment

This section highlights only two of the many Driving Forces confronting youths in the complex job environment. First, the Panel pinpoints a Driving Force that is social in nature — youths' growing anxiety over their career health. Thereafter, the Panel pinpoints a Driving Force that is macroeconomic in nature — SEA's growth trajectory.

3.1 Youths' Growing Anxiety over their Career Health

It is evident that youths are increasingly anxious about their career health, and this is a Driving Force that should not be neglected. Panel Survey 1 revealed that 62% felt "somewhat/very/extremely stressed" about their future job prospects. Data from the youth Sentiment Polls and the Youth STEPS Longitudinal Study showed that 37% of youths were uncertain about their career paths (Institute of Policy Studies, 2023).

From the same study, seven in 10 have indicated that they faced more competition from foreign talent, while slightly over half have expressed an inability to keep up with the skills required in the ever-changing nature of work and the global economy. Furthermore, over two in five youths believed that there were insufficient opportunities to pursue jobs that were aligned with their interests and passions.

Despite their career anxieties, youths recognise concrete steps they can take to boost their career health and are willing to work on improving themselves and their career health. 63% of our survey respondents

agreed that gaining regional working experience will help them advance faster in their careers, and 50% indicated that they would consider career opportunities in SEA. These observations motivated our Panel to explore ways to better support Singaporean youths in pursuing overseas stints in SEA, which can improve their career prospects and help to allay their anxieties.

One way their growth mindset can be harnessed is by better informing them about overseas opportunities in SEA and better supporting them in taking up these overseas opportunities, such that these opportunities become stepping stones in their career development journeys, regardless of how short or how long a duration they wish to spend overseas.

3.2 SEA's Growth Trajectory

The Association of Southeast Asian Nations – the grouping of 10 SEA nations, is set to be the world's fourth-largest economy by 2030. Factors such as rapid economic growth, population demographics, strategically beneficial geography, infrastructure and technology development and foreign direct investment have a part to play (Economic Development Board, 2024). As such, SEA is an attractive market for businesses to penetrate, especially as part of their supply chain diversification and resilience. This has proven essential, especially in uncertain times such as the COVID-19 pandemic and rising geopolitical tensions, which disrupt businesses and trading activities.

3. Driving Forces in a Complex Job Environment

With more businesses setting up in SEA, Singaporean youths will have more opportunities when trying to improve their career health.

The next section, Section 4, details some gaps the Panel has observed in Singapore's career development ecosystem for youth.

Thereafter, in Section 5, the Panel proposes nine specific recommendations across the three themes of Awareness, Financial Accessibility, and Partnerships. These nine recommendations are aimed at addressing the gaps identified in Section 4 and helping Singaporean youths capitalise on the aforementioned macroeconomic Driving Force.

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4. Three Gaps in Singapore's Career Development Ecosystem

The following two trends are occurring now, at the same time:

1. Youths' heightened concerns about the job market, and
2. Growing economic opportunities (e.g. internships, full-time jobs, industry immersion programmes, etc.) in SEA countries.

Yet, interest in pursuing such overseas opportunities remains low among youths. Although 75% of respondents in Panel Survey 1 expressed being "somewhat/very motivated" to step out of their comfort zones to improve their job prospects, concerns around lower standard of living, lower pay standards and type of job opportunities in SEA led to scepticism around the pursuit of SEA Economic Opportunities, according to focus group discussions facilitated by Asia Insight[1].

This reveals a disconnect — one would have assumed that youths' career anxieties would drive them to be more open to overseas economic opportunities in SEA, but this expectation has not been realised.

To explain this disconnect, the Panel has identified some gaps in Singapore's career development ecosystem, grouped into three main themes: Awareness, Financial Accessibility and Partnerships.

4.1 Awareness: Limited understanding of how tapping on SEA opportunities contributes to job readiness and career health

There is limited awareness of how overseas experiences in SEA can significantly help youths lay a good foundation for their long-term career health and carve out their long-term career aspirations early on in their developmental journeys.

First, there is a lack of appreciation of the region's economic potential. Second, there is a lack of awareness of the overseas opportunities available.

Without these, many youths will continue being unable to fully appreciate the job-readiness and career health benefits these opportunities can bring. Tackling these two areas is essential for youths to envision how overseas opportunities in SEA can be a stepping stone towards their career aspirations.

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[1] A total of 16 young professionals, students and recent graduates attended these FGDs

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4. Three Gaps in Singapore's Career Development Ecosystem

The Panel believes that awareness campaigns for overseas opportunities in SEA should make the benefits more tangible to youth audiences. One way awareness-raising efforts can be made more tangible is by framing messages using the following structure (in the diagram below):

TIER 3
How SEA can be a building block for your long-term aspirations

TIER 2
How tapping on SEA opportunities will help job readiness and career health

TIER 1
What are the existing opportunities
What are the cultural misconceptions of SEA countries

Through its surveys, the Panel found that many youths lack knowledge about SEA economic opportunities. In Panel Survey 1, less than 50% of the 1000 youths felt that understanding the region is useful for their future careers and important for their longer-term prospects. In Panel Survey 2, 57.9% expressed a lack of interest in SEA economic opportunities. Misconceptions about SEA countries appear to fuel this disinterest. Concerns such as lower standard of living, pay disparity, limited job roles available and fear or uncertainty of moving to a new country, were

frequently cited as deterrents for pursuing SEA economic opportunities.

From here, it is evident that Tier 1 needs to be addressed wherein fundamental knowledge about SEA is shared with youths, to generate greater appreciation and receptivity to opportunities in the region. This can be coupled with the visibility of existing programmes that bring youths to SEA.

Once this is achieved, the next focus would be on Tier 2, in order to inspire further action towards the pursuit of SEA opportunities. Here, the focus would be on explicitly informing youths exactly "what's in it for them". Telling youths what they stand to gain will help them better understand how these overseas opportunities will contribute to job readiness and career health.

4.2 Financial Accessibility: Low awareness of, and possible gaps in, government funding for youths to pursue overseas opportunities in SEA

The Panel acknowledges the numerous forms of financial support already offered by various government agencies, for youths to pursue overseas opportunities in SEA. However, the Panel's internal deliberations, as well as interactions with the YPF attendees, revealed anecdotes that some youths still do not conceive overseas opportunities to be financially feasible. Some youths may have caregiving responsibilities in Singapore or need to work part-time due to their family's financial circumstances, and thus find it challenging to be physically away from

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4. Three Gaps in Singapore's Career Development Ecosystem

Singapore, even for a few days. Some may neither have the bandwidth to complete the necessary administrative procedures for an overseas stint, nor have the capacity to research various overseas opportunities and financial support available. Some may erroneously assume that the existing financial support is insufficient to ensure affordability, even though this may not be true for their specific financial circumstances. Some may also be hesitant to forsake their income from their (part-time) job in Singapore, even after accounting for the financial support they may receive to go for an overseas stint (e.g. EnterpriseSG's GRT).

Half of the respondents in Panel Survey 1 expressed that they seek scholarships to pursue such opportunities, as financial constraints often make overseas stints unfeasible. Additionally, 42.1% indicated that financial constraints are the main deterrents for pursuing SEA economic opportunities. This was reflected by some participants at the YPF, who shared concerns about the lack of funding and relocation costs.

Given the diversity of financial circumstances that different youths face, the Panel is not calling for a one-size-fits-all solution and will recommend a differentiated solution in Section 5 of this paper. Yet, a few points deserve emphasis:

Firstly, some youths may hope to pursue overseas opportunities in SEA but find themselves having to choose between these overseas career development opportunities and their (part-time) jobs and/or caregiving responsibilities that require them to be physically present in Singapore.

Secondly, the Panel believes in balancing the idealistic freedom in exploring long-term career aspirations with the realistic constraints of short-term financial pressures. In other words, while some youths may enjoy exploring various career aspirations without constraints of personal finances to an inordinate degree, other youths face different financial struggles which limit their ability to discuss long-term aspirations.

Finally, the Panel believes in adopting a multifaceted method to address the various reasons why youths choose not to embark on overseas opportunities. These reasons include: a lack of personal initiative to research overseas opportunities and funding available; lack of bandwidth to consider going overseas; and caregiving/financial responsibilities deterring youths from signing up for such opportunities. Regardless of the specific impediment, what is clear is that efforts to engage youths on this topic of pursuing overseas opportunities in SEA, need to be multifaceted, not monolithic.

4.3 Partnerships: Some schools have fewer informal resources for their student's career development, which can be topped up via collaborations with ecosystem players

The Panel acknowledges that MOE's current ECG pipeline already offers students numerous opportunities and various types of support. However, related to how Minister for Education Mr Chan Chun Sing called upon "alumni of illustrious schools" to share their resources and networks with other schools in their cluster, beyond just their sole alma

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4. Three Gaps in Singapore's Career Development Ecosystem

mater, the Panel's internal deliberations and comparisons of the ECG support available in different schools likewise revealed some anecdotes of uneven access to resources and opportunities. For example, some schools may have greater capacity than other schools to invite alumni back to give career talks to current students. This is not to say that relationships and networks are actively harmful, but rather to draw attention to the possibility that students in some schools may not enjoy some opportunities to reflect on and formulate their career aspirations, nor keep pace with the career development milestones of their peers in better-resourced schools.

The Panel believes that more can be done to support schools with fewer out-of-curriculum resources, including schools with less-developed alumni networks. In the early stages, when youths start to think about their aspirations, improving the centralised resources that all students have access to will provide them with more comprehensive support to make better-informed decisions.

Although half of the respondents from Panel Survey 1 trusted their schools, ECG counsellors, and teachers for career advice, only 36% felt their schools had sufficiently prepared them for the workforce. However, the Panel acknowledges that this statistic should be viewed with caution since the survey respondents included older cohorts

of youths who may not have experienced the recently revamped formal ECG curriculum by MOE. Representatives from MOE highlighted that the ECG programme has developed significantly across the years, now with each school having an ECG counsellor. That said, each school's resources are limited to their respective networks and initiatives. This highlights the importance of partnerships in helping youths with improving their career health and readiness.

In addition to school support, employers play a pivotal role in encouraging youths to explore SEA economic opportunities by partnering with local programmes (e.g., AEP, GRT) to bring more such overseas opportunities to youths[2]. Further, endorsing useful skills which may be reaped from SEA economic opportunities could generate a better understanding of how these opportunities are relevant to Singapore's workforce[3]. However, only 29% of respondents from Panel Survey 1 felt that employers are doing enough to help students.

These findings underscore the need to enhance Awareness, Financial Accessibility, and Partnerships to connect youths to SEA Economic Opportunities, address their anxieties, and encourage them to explore other career pathways. Section 5 will further elaborate on our recommendations for each theme.

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[2] Insights from Focus Group Discussions with AEP and EnterpriseSG
[3] Sentiment shared by a participant at the YPF

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Based on the three gaps articulated in Section 4, this section will articulate the recommendations proposed by the Panel. The Panel's recommendations are grouped into three themes, which correspond to the three gaps identified. For each theme, this paper will highlight existing initiatives and how they can be built upon, or how they can complement the Panel's recommendations.

5.1 Increasing Awareness of SEA's Potential

5.1.1 Objectives

The recommendations under the Awareness pillar serve to expand the worldviews of youths to better appreciate SEA such that they are interested in knowing what opportunities are available and how these benefit their job readiness and career health.

5.1.2 Existing policies and initiatives

Awareness campaigns are currently in place, both in the classroom and online. Educational institutions have curricula and programmes aimed at generating greater appreciation for SEA cultures and facilitating greater exposure to the region:

- From the Panel's discussion with MOE's ECG team, there are already ongoing efforts to expose students to SEA through History lessons, for example. Lessons focus on strengthening the SEA narrative by showcasing how the region has become dynamic and relevant, as well as its economic and geopolitical interdependence with Singapore.

- Beyond this, ECG also increases students' awareness of careers and industries,

through partnerships with industry players, alumni, and parents. However, this is for careers as a whole and is not specifically focused on SEA.

- Institutes of Higher Learning (IHLs) have programmes that bring students to various SEA countries. These overseas programmes include exposure trips to learn more about different cultures, internships, and community service. It is important to note that for overseas internships, currently there may be limited opportunities, depending on the student's chosen field of study. For example, employers with operations overseas in SEA may offer more internship opportunities to students studying Data Analytics or Business, and fewer opportunities to students majoring in other fields.

In the online realm, several organisations already have social media publications featuring human interest stories of Singaporeans who have gone overseas, to SEA, to work (The Straits Times, 2024). Such content is useful in exposing youths to the information they need before committing to an overseas internship in SEA (The Straits Times, 2024). The following YouTube videos and journalistic articles are also helpful in encouraging youths to consider taking up such opportunities because they demystify what overseas internships would entail, and also allay the fears that youths may have:

- The Smart Local has a series of YouTube videos under the banner of "The Smart Global", which can help youths become better informed about the realities of going overseas to work (The Smart Global, 2023).

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- In addition to their Instagram content, the Singapore Global Network also has a playlist of YouTube videos featuring Singaporeans who work overseas (Singapore Global Network, 2022).

- IHLs have also posted numerous articles and videos of students sharing their experiences interning overseas and encouraging their juniors to do the same (NUS Overseas Colleges, 2024).

Notably, the aforementioned three examples demonstrate existing efforts by the media, the government, and academia, respectively. These are just some of the many pieces of social media content already available online, and the Panel commends these efforts to encourage youths to take up overseas internships.

5.1.3 Panel's Recommendations

However, the Panel's findings indicate that most youths are unaware of the overseas internships available and have not considered taking up such opportunities, with 75% of 1000 youths surveyed in Panel Survey 1 being unaware of internships in SEA. Existing social media content is likely only reaching a small subset of youths. Hence, more should be done to build on existing efforts to raise youths' awareness of the economic opportunities available for them overseas, in SEA.

Hence, as a first step, the focus of the Panel's recommendations is on Tier 1 and Tier 2. However, even though this paper will mainly address Tier 1 and Tier 2, the Panel has included Tier 3 as a reminder to ecosystem players and youths that Awareness campaigns should not simply be an exhaustive listing of available opportunities, but rather also

encourage youths to reflect on what they hope to achieve in the long-term.

In this vein, the Panel makes the following recommendations for the respective Tiers:

TIER 3
How SEA can be a building block for your long-term aspirations

TIER 2
How tapping on SEA opportunities will help job readiness and career health

TIER 1
What are the existing opportunities
What are the cultural misconceptions of SEA countries

5.1.3.1 Recommendations for Tier 1

The Panel recommends the National Youth Council (NYC) to add a sub-webpage to their "Discover, On My Way" website, to exhaustively list SEA opportunities available for youths, in the form of a career development roadmap. The Panel has created a sample of what this roadmap can look like, which can be found in Annex A ("Roadmap Sample for Pursuit of SEA Opportunities"). This provides youths with a comprehensive overview of regional opportunities to develop their career throughout their education journey.

To further enhance this to cover the scope of Tier 2, the roadmap can also be linked to content from the websites of the various programmes, especially where there are

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feature articles that highlight the experiences of past participants.

5.1.3.2 Recommendations for Tier 2

The Panel recommends NYC to commission local media companies to create human interest stories, in the form of videos and articles that can be added to https://discover.nyc.gov.sg/omw. These videos and articles should feature Singaporeans who took the leap of faith to live and work overseas, and should highlight not just the benefits, but also the challenges they faced, to provide youths with a more balanced and accurate depiction of what an overseas stint would entail. These personalised stories will also enable youths to see how such experiences are valuable to their job-readiness and career health.

After the aforementioned additions have been made to NYC's "Discover, On My Way" website, then ECG counsellors should utilise this updated website when advising students on the multiple career pathways available. This provides students with fuller information on both local and overseas opportunities, so that they can make a more informed decision.

While the Panel encourages youths to embark on an overseas internship in SEA, it acknowledges that parents/guardians may have concerns about this, and thus forbid their children/wards from doing so. The Panel acknowledges that some parents/guardians may have a variety of concerns, e.g. safety, security, lifestyle differences, pay differences, negative impact on their child/ward's longer-term career prospects, uncertainties in other SEA countries, etc. Hence, stakeholders in the career development ecosystem need to take the time to engage parents/guardians, clarify misconceptions, build trust and confidence, and gradually secure their buy-in step-by-step.

One way stakeholders can do so is to utilise the updated "Discover, On My Way" website to explain to parents/guardians:

1. the overseas opportunities available for their children/wards,

2. the longer-term career development ladder and benefits that their children/wards stand to gain by going for these overseas opportunities, as well as

3. recent and representative information about the risk levels in other SEA countries, so as to allay parents'/guardians' worries and concerns for their children/wards.

The Panel acknowledges the aforementioned recommendations may sound similar to initiatives that already exist. However, the Panel points out that its recommendations address some gaps that existing initiatives do not, and would value-add in the following ways:

1. Provide youths with a "helicopter vision" of their career development pathway: this is similar to the "Course Planner" function on https://nusmods.com/planner, where students are able to seamlessly zoom in to the micro picture, to plan exactly which module serves as a prerequisite for which subsequent module, and zoom out to the big picture, to appreciate how each constituent effort fits into the overall trajectory and contributes to the larger goal of attaining a degree. Likewise, with the additions to NYC's "Discover, On My Way" website, as recommended by the Panel, this website can help youths map out the actionable steps they can take, while simultaneously developing an awareness of the overall trajectory that their efforts are building up towards.

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2. The Panel's proposed additions to NYC's "Discover, On My Way" website would explicitly inform youths about how local opportunities can build up to overseas opportunities. The following is an illustration of one of the many possible pathways a youth can take: a youth may first participate in the Youth Corps Community Internship (YCCI), which includes a local internship and visits to companies like Eco-Ark's high-tech fish farm. YCCI not only aids the youth in career development, but also builds the confidence of the youth to subsequently commit to the Youth Corps Leaders Programme (YCLP), and thereafter to a Youth Expedition Project (YEP). Having had overseas experience via YEP, the youth may now feel more prepared to commit to an overseas internship via NUS Overseas Colleges (NOC), with partial funding provided by GRT. Sample pathways like this have been mapped out in the Panel's mock-up of its proposed additions to NYC's website (see Annex A).

3. The Panel's proposed additions to NYC's "Discover, On My Way" website would improve the centralised and common ECG resources that all schools have access to, via a free-to-access online resource, so that all students can benefit equitably, regardless of the school they are currently enrolled in.

Taken together, these recommendations will augment existing efforts to raise youths' awareness of the benefits and challenges of taking up an overseas internship in SEA, which is a crucial step in encouraging them to take up such opportunities.

5.2 Keeping Opportunities in SEA Financially Accessible

5.2.1 Objectives

This recommendation seeks to level the playing field for youths who may not have the privilege or bandwidth to explore SEA economic opportunities, due to factors such as caregiving responsibilities or financial circumstances.

5.2.2 Existing policies and initiatives

Overseas programmes targeted at youths provide financial support in the form of subsidies, grants and stipends. This ensures that youths of various socio-economic backgrounds can participate in them. Such overseas programmes take different forms, including internships, industry immersion, and community service. They are supported by various organisations, ranging from government agencies to IHLs. Existing initiatives receiving funding include:

1. IHLs offer various forms of funding and financial aid to students participating in overseas programmes, including those specific to Southeast Asia, China and India. For example, the National University of Singapore (NUS)'s Experience Southeast Asia Award (ESA) offers funding valued at up to S$1000 for full-time NUS students participating in eligible programmes. NTU also offers Travel Awards for students participating in its Global Education and Mobility (GEM) programmes.

2. Reactor School's EntreConference provides opportunities to understand the entrepreneurial environment in regions such as Shanghai and Bangkok,

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for students with a keen interest in entrepreneurship. It is supported by NYC's AEP, which provides Singapore citizens with grants of up to $1000, to offset the programme cost.

3. EnterpriseSG's Global Ready Talent Programme (GRT) supports IHL students with undertaking physical overseas internships in Southeast Asia, India, China, and select emerging markets. EnterpriseSG and respective IHLs co-fund travel and subsistence allowances on top of monthly internship salaries for students.

Financial assistance for some of the IHL programmes, as well as EntreConference covers flights, accommodations and transportation for activities. It excludes personal and medical expenses.

5.2.3 Panel's Recommendations

The Panel recommends that EnterpriseSG publish a guideline for stipends, based on prevailing exchange rates against Singapore's currency and the average cost of living (CoL) in Singapore. This guideline is illustrated in Annex B ("Recommended Stipends") and should be adhered to by other government agencies and IHLs. Singapore's CoL is used to ensure that youths are compensated fairly, considering they may earn an income with lower purchasing parity in the destination country. Annex B aims to account for the differences in purchasing parity between Singapore and the destination country. The Panel believes this stipend guideline should be utilised for SEA-focused exposure and internship programmes, such as NYC's AEP and EnterpriseSG's GRT.

Cost remains a significant barrier to youth participation in SEA economic opportunities. In Panel Survey 2, respondents ranked local internships as their preferred stint, followed by SEA internships and local part-time jobs. Among the 59% who had not participated in SEA programmes, 42.1% cited cost as a key deterrent.

Furthermore, in Panel Survey 1, only 39% indicated that they had sufficient opportunities to build a portfolio which adequately prepares them for the workforce. Even among the respondents who had participated in SEA programmes, financial support played a crucial role as 84.6% received subsidies upon admission, and 38.5% were provided with a daily stipend.

These findings highlight the need for greater financial support to encourage youth engagement with SEA economic opportunities. This exposure is vital for developing job readiness, acquiring new skills and gaining valuable cross-cultural experiences that can differentiate Singaporean youths in the workforce. The Panel recommends that EnterpriseSG, NYC, MOE, and IHLs review the subsidies and stipends they currently provide for youths to go overseas, and top up the financial aid they provide, to be in line with the published stipend guideline.

Notwithstanding the data collected, Panel members shared anecdotal accounts of peers, particularly those from polytechnics, balancing caregiving responsibilities or jobs to fund their university education. For these individuals, their financial constraints have led them to local job roles with immediate financial returns, rather than overseas economic

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opportunities in SEA. This underscores the importance of financial support in levelling the playing field and ensuring that financial constraints do not limit access to valuable SEA opportunities.

The Panel recommends that EnterpriseSG and NYC consider providing additional stipends to youths facing greater financial constraints, for GRT and AEP respectively. To facilitate the implementation of this recommendation, EnterpriseSG and NYC can request youths to submit relevant documentation (such as current/past employment records, expenditures etc.), to be reviewed on a case-by-case basis.

5.3 Partnerships as a Gateway to SEA

5.3.1 Objectives

Strong partnerships between non-profit organisations, government agencies, and schools will provide a supportive environment that enables students to make informed career decisions and venture bravely into overseas opportunities in SEA. These synergies will better equip students with mentorship, career exposure, and immersion opportunities to alleviate their fears, inspire confidence, and expand awareness of SEA's professional landscape.

This is crucial, as Panel Survey 1 revealed that 71% of respondents think that securing one's desired job will be a little/much more difficult in 10 years' time compared to now[4]. While half of the surveyed youths are open to internships or job opportunities in SEA, 53% express fear and uncertainty about moving to a new country, largely due to a lack of guidance on potential career paths in the region.

5.3.2 Existing policies and initiatives

MOE's ECG branch is pivotal in helping students make informed career decisions. According to Panel Survey 1, respondents trust ECG counsellors the most for career advice, surpassing friends, teachers, and online platforms.

There are also existing mentorship and resource networks, such as:

- Mentoring SG, a national mentoring movement

- Advisory Singapore, The Astronauts Collective, Bold At Work, Praxium, and Access Singapore, which support career exploration

- The Economic Development Board (EDB)'s Singapore Global Network (SGN), which brings together Singaporeans living and working overseas

- WSG's Polaris by Volunteer Career Advisors (VCA), which provides mentorship and career guidance to graduates from polytechnics and autonomous universities

Currently, individual schools tap into their networks to provide their students with career development resources (e.g. career talks by alumni), beyond the formal ECG curriculum. However, without centralised curation, these opportunities remain unevenly distributed across schools.

However, the Panel acknowledges that some existing initiatives can mitigate this uneven distribution. For example, IHLs can consider tapping into "Polaris by VCA", which can

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[4]The definition of "good jobs" was left open for interpretation to accommodate diverse youths' perspectives.

5. Recommendations

complement their ECG efforts with industry insights so that graduating students entering the workforce can make more informed career decisions when considering overseas opportunities, instead of relying only on their alumni networks. Additionally, SGN provides a global network for current students in secondary schools and IHLs to broaden their career exposure.

5.3.3 Panel's Recommendations

To address the gaps, the Panel recommends the following:

5.3.3.1 Centralising Mentorship Resources
MOE's ECG branch should take on the role of a centralised curator for mentorship and career exposure resources. By establishing a unified pool of mentors and speakers, ECG can ensure equitable access for all schools, regardless of their existing networks. This curated pool should include inspirational Singaporean professionals who have built successful careers in SEA, as well as accomplished SEA professionals.

These mentors and speakers can provide invaluable insights, sharing their experiences to guide and inspire students. By highlighting diverse career pathways and opportunities in the region, they can help demystify fears and uncertainties associated with working abroad. This centralised approach will allow ECG to harness the collective expertise of organisations such as Mentoring SG, Advisory Singapore, and the SGN, creating a cohesive platform to support students in exploring and embracing SEA opportunities.

5.3.3.2 Integrating Mentorship in Schools
To maximise the impact of mentorship programmes, these initiatives should be seamlessly integrated into existing ECG sessions within schools. By embedding mentorship directly into the structured ECG framework, students can access career guidance consistently and meaningfully.

Additionally, mentorship can be extended through speaker sessions conducted during school assemblies or as part of after-school programmes. These sessions, explicitly targeted at secondary school students, can feature professionals who share their career journeys, insights, and advice. The inclusion of such sessions ensures broader reach and allows students to engage with mentors in an inspiring and relatable setting, fostering better-informed decision-making about their future career paths.

5.3.3.3 Expanding Immersion Programmes
In addition to mentorship, students should have the opportunity to experience real-life professional environments in SEA. Exposure to such experiences can bridge the gap between theoretical understanding and practical application, helping students better appreciate the region's potential and relevance.

MOE's ECG branch can collaborate with professional networks like SGN Kakis to organise structured immersion programmes. Initiatives such as the Ship for SEA and Japanese Youth Programme (SSEAYP) and the Youth Leaders Exchange Programme provide excellent platforms for students to engage with regional professionals, build networks, and gain insights into SEA industries.

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Furthermore, existing MOE school trips can be enhanced to include elements of professional life exposure in SEA. Rather than focusing solely on cultural immersion, these trips could incorporate visits to regional offices, mentorship sessions with professionals, or hands-on learning experiences within local industries. Such initiatives can help students envision thriving careers in SEA while fostering a deeper understanding of the region's professional and cultural landscape. The Panel recommends that SGN help organise company visits and incorporate them into existing overseas school trips so that students can get to meet Singaporeans living and working overseas as part of their immersion trip's itinerary.

5.3.3.4 Challenging Misconceptions
Mentorship, career chats, and immersion programmes can play vital roles in reshaping students' perceptions of SEA. These initiatives aim to dispel the misconception that SEA lags behind Singapore, by highlighting the region's dynamic opportunities, thriving industries, and potential for career growth.

Through curated exposure, students can engage with inspiring success stories of Singaporean and SEA professionals who have achieved remarkable milestones in the region. By showcasing the relevance and vibrancy of SEA, these programmes can challenge outdated stereotypes and encourage students to view the region as a land of opportunity. This approach fosters a mindset shift, motivating youths to embrace and explore SEA's professional landscape with confidence and enthusiasm.

Through these recommendations, ECG can streamline and consolidate resources, ensuring that all students have equal access to mentorship and immersion opportunities. This will help nurture a generation that is not only confident but also well-prepared to explore and thrive in SEA.

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6. Conclusion

This policy paper is not meant to be an end, but rather a starting point for further debate, suggestions on improvements, and efforts. Through engagements with the public, the Panel was questioned whether these recommendations would push youths out of Singapore. However, in response, the Panel pointed out that an overseas internship stint in SEA does not require permanent relocation. Some may benefit from and enjoy working overseas for longer, some for shorter. The Panel recommends better support for youths in trying this out for the first time — even for a short stint overseas. The Panel believes it will still be helpful for job readiness and career growth, especially given the macroeconomic driving forces we highlighted above.

The Panel's recommendations are a start, and if they were to be implemented, they would pave the way for future efforts to move more boldly in the direction of un-frontloading Singapore's education system (see point 3b, Ministry of Education, 2022), by mixing classroom learning with workplace learning even more. This would help youths in improving their career health from a younger age. Beyond the education system, other dimensions of the Panel's recommendations have yet to be explored, such as incentives for Singapore-owned businesses in SEA to participate.

If this paper manages to invigorate a debate about SEA opportunities, then the Panel believes it has achieved at least one of its objectives — shifting the conversation towards: "how greater overseas exposure in SEA can improve the career health of Singaporean youths". A similar shift in mindsets could contribute to the refreshing of Singapore's social compact and may lay the foundation for the improvement of youths' economic and job security.

Beyond the recommendations in the previous sections, the Panel finds that three other areas remain to be explored:

6.1 Youths who have graduated from IHLs

Since this paper focused only on a specific subset of youths, further exploration is needed on how SEA opportunities can be harnessed for YWAs. This group of youths face different considerations and constraints, given they have already kickstarted their careers, received earnings of a certain pay scale, and are managing other life circumstances such as marriage, housing, and starting a family. Aspirations entailing SEA opportunities would have to account for the interplay of these dynamics. The Panel believes that existing programmes such as OMIP, which serve to encourage employers to send their staff overseas, may have a part to play in encouraging these YWAs.

6.2 Further tweaks needed for specific segments of the youth population

During the YPF, the Panel also received feedback to consider the additional constraints and hurdles faced by youths with physical disabilities, and students in private universities. The Panel acknowledges that further efforts should be made to tailor our recommendations to specific segments of the youth population, including Persons with Disabilities (PwDs), private university graduates, students in Madrasahs, and more. Some ideas that the Panel considered included local-based internationalisation programmes, cultural exchanges held physically in Singapore, and virtual internships offered by companies/organisations with operations overseas (beyond just Singapore).

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6.3 Industry Involvement

Much of this paper focused on what youths and the public sector can do to facilitate the pursuit of SEA opportunities and enable aspirations to take form. However, another critical stakeholder that is needed is the private sector. The Panel has highlighted the partnerships that can be built upon in Section 5.3. However, the Panel also sees room for further ex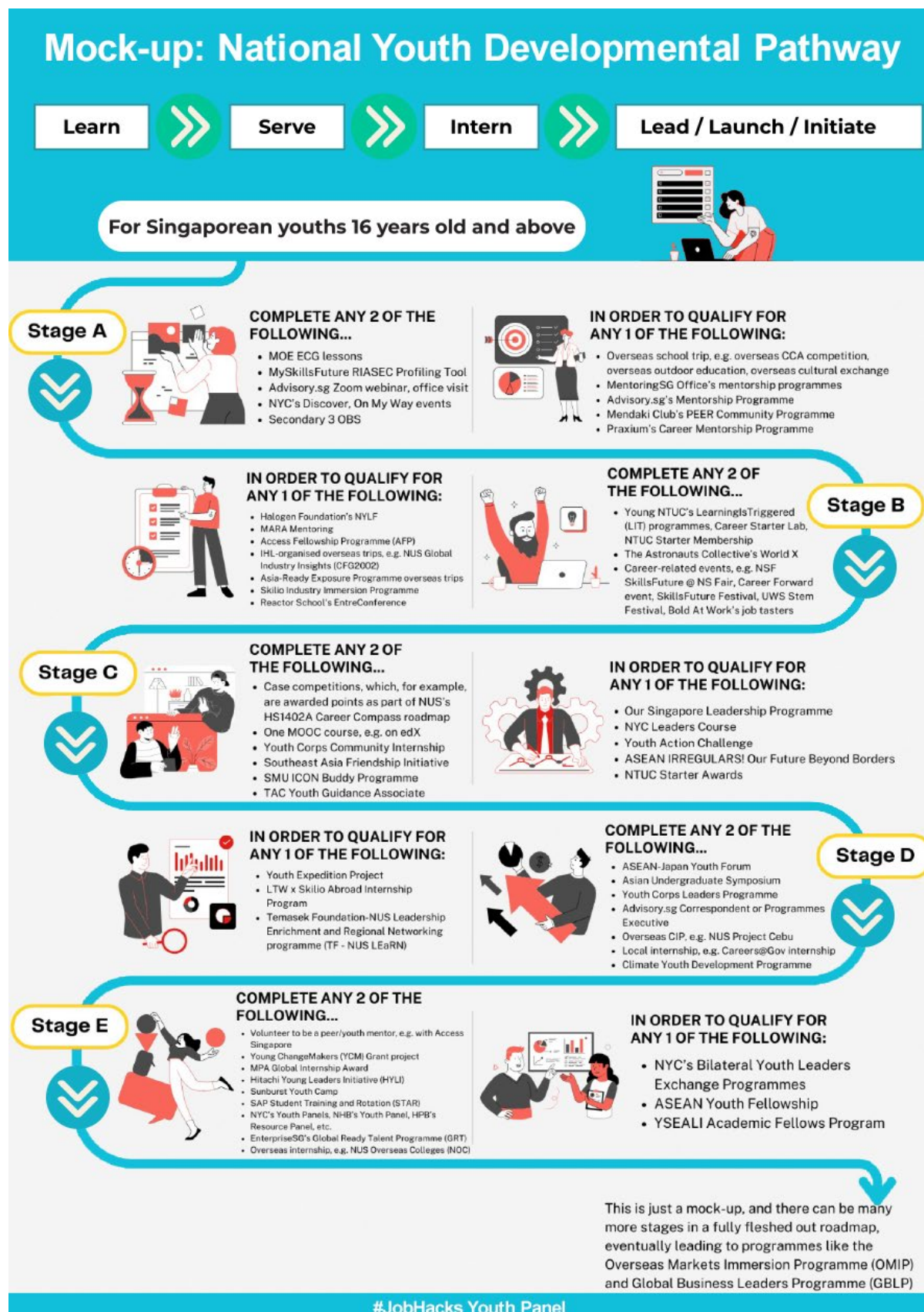ploration of how industry players can be more involved in the process. For instance, there may be opportunities for Memorandums of Understanding (MOUs) to be established with employers that have overseas offices in SEA, to facilitate internship placements for Singaporean youths, while also addressing the concerns that have been mentioned in this paper, e.g. limited overseas internship positions.

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Annex A - Roadmap Sample for Pursuit of SEA Opportunities

Mock-up: National Youth Developmental Pathway

Learn » Serve » Intern » Lead / Launch / Initiate

For Singaporean youths 16 years old and above

Stage A

COMPLETE ANY 2 OF THE FOLLOWING...
- MOE ECG lessons
- MySkillsFuture RIASEC Profiling Tool
- Advisory.sg Zoom webinar, office visit
- NYC's Discover, On My Way events
- Secondary 3 OBS

IN ORDER TO QUALIFY FOR ANY 1 OF THE FOLLOWING:
- Overseas school trip, e.g. overseas CCA competition, overseas outdoor education, overseas cultural exchange
- MentoringSG Office's mentorship programmes
- Advisory.sg's Mentorship Programme
- Mendaki Club's PEER Community Programme
- Praxium's Career Mentorship Programme

IN ORDER TO QUALIFY FOR ANY 1 OF THE FOLLOWING:
- Halogen Foundation's NYLF
- MARA Mentoring
- Access Fellowship Programme (AFP)
- IHL-organised overseas trips, e.g. NUS Global Industry Insights (CFG2002)
- Asia-Ready Exposure Programme overseas trips
- Skilio Industry Immersion Programme
- Reactor School's EntreConference

COMPLETE ANY 2 OF THE FOLLOWING...
- Young NTUC's LearningIsTriggered (LIT) programmes, Career Starter Lab, NTUC Starter Membership
- The Astronauts Collective's World X
- Career-related events, e.g. NSF SkillsFuture @ NS Fair, Career Forward event, SkillsFuture Festival, UWS Stem Festival, Bold At Work's job tasters

Stage B

Stage C

COMPLETE ANY 2 OF THE FOLLOWING...
- Case competitions, which, for example, are awarded points as part of NUS's HS1402A Career Compass roadmap
- One MOOC course, e.g. on edX
- Youth Corps Community Internship
- Southeast Asia Friendship Initiative
- SMU ICON Buddy Programme
- TAC Youth Guidance Associate

IN ORDER TO QUALIFY FOR ANY 1 OF THE FOLLOWING:
- Our Singapore Leadership Programme
- NYC Leaders Course
- Youth Action Challenge
- ASEAN IRREGULARS! Our Future Beyond Borders
- NTUC Starter Awards

IN ORDER TO QUALIFY FOR ANY 1 OF THE FOLLOWING:
- Youth Expedition Project
- LTW x Skilio Abroad Internship Program
- Temasek Foundation-NUS Leadership Enrichment and Regional Networking programme (TF - NUS LEaRN)

COMPLETE ANY 2 OF THE FOLLOWING...
- ASEAN-Japan Youth Forum
- Asian Undergraduate Symposium
- Youth Corps Leaders Programme
- Advisory.sg Correspondent or Programmes Executive
- Overseas CIP, e.g. NUS Project Cebu
- Local internship, e.g. Careers@Gov internship
- Climate Youth Development Programme

Stage D

Stage E

COMPLETE ANY 2 OF THE FOLLOWING...
- Volunteer to be a peer/youth mentor, e.g. with Access Singapore
- Young ChangeMakers (YCM) Grant project
- MPA Global Internship Award
- Hitachi Young Leaders Initiative (HYLI)
- Sunburst Youth Camp
- SAP Student Training and Rotation (STAR)
- NYC's Youth Panels, NHB's Youth Panel, HPB's Resource Panel, etc.
- EnterpriseSG's Global Ready Talent Programme (GRT)
- Overseas internship, e.g. NUS Overseas Colleges (NOC)

IN ORDER TO QUALIFY FOR ANY 1 OF THE FOLLOWING:
- NYC's Bilateral Youth Leaders Exchange Programmes
- ASEAN Youth Fellowship
- YSEALI Academic Fellows Program

This is just a mock-up, and there can be many more stages in a fully fleshed out roadmap, eventually leading to programmes like the Overseas Markets Immersion Programme (OMIP) and Global Business Leaders Programme (GBLP)

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Annex B - Recommended Stipends

Country	Recommended Stipend Target (COL-Adjusted[5], in domestic currency)	Recommended Stipend Target (FX-adjusted S$)
Bangkok (Thailand)	32562.5 ฿	1265.13
Hanoi (Vietnam)	18115782.50 ₫	959.38
Ho Chi Minh (Vietnam)	19864373.25 ₫	1051.98
Jakarta (Indonesia)	12561264.39 Rp	1063.74
Kuala Lumpur (Malaysia)	4,096.16 MYR	1234.76
Manila (Philippines)	51372.6₱	1163.24
Penang (Malaysia)	3505.7 MYR	1056.77
Phnom Penh (Cambodia)	912.63 USD	1229.07

[5] Cost of Living Recommended Stipends are based on number estimates and include meals, transportation, leisure, and groceries. The recommended stipend target is then converted to Singapore dollars to provide an estimate for government agencies like EnterpriseSG and NYC to calibrate payouts.

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Annex C - Other Policy Ideas from the Panel

This section contains other policy ideas that were mooted in the early stages of the Panel's work, though they did not progress due to varied reasons (e.g. limited time, policy prioritisation, and feasibility). However, in the spirit of why the Youth Panels have been organised, the panel felt that including these ideas into the final deliverable was essential as part of enabling the voices of Panel members to be heard for visibility and for policymakers to consider further exploration in the future.

Content:
1) Mutual learning opportunities among IHL and mid-career lifelong learners

2) Building Career Resilience Through Lateral Skills and Flexible Work

3) Institutional support for National Servicemen

1) Mutual learning opportunities among IHL and mid-career lifelong learners

The move towards lifelong learning, and away from front-loaded formal education, creates a prime opportunity for youths to learn from mid-career workers returning to IHLs, and for the youths to journey with the seniors on getting up to speed with the latest trends and technology. Building on Professor Paulin Straughan's idea of "intergenerational transfers" (Institute of Policy Studies, 2023), the Panel discussed the possibility of youths in IHLs helping to ease mid-career learners' transition from the working world, back into the schooling world. More opportunities for mutual learning between youths and mid-

career learners could be created, thereby tapping on each group's unique strengths and experiences, and making a mid-career skills top-up a more rewarding experience where one not only learns, but also shares one's practical knowledge, accumulated through decades of work.

This approach aligns with the shift towards lifelong learning, emphasising mutual learning and adaptability. Intergenerational learning can leverage mid-career workers' deep expertise and real-world experiences while empowering younger students with mentorship and knowledge-sharing opportunities. This symbiotic model encourages a two-way exchange: mid-career learners benefit from tech-savvy youths' insights on current trends and digital skills, while youths gain wisdom and lived experiences from seasoned professionals. Structuring mentorship programmes, collaborative projects, and skill-sharing workshops could facilitate this dynamic, fostering an inclusive learning environment that prepares all learners to adapt more fluidly to the evolving job market.

Singapore is a highly open economy that requires a balance between the local and foreign workforce. However, it would be a missed opportunity if Singapore's government agencies expend great efforts to attract foreign MNCs to create jobs in Singapore, only to have several of these companies struggle to hire enough locals for the roles they have created.

Even while this potential problem is being tackled downstream, more can be done upstream to avoid this problem in the first place.

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For example, by further tightening the nexus between industry and polytechnics, and publicly articulating a pathway for local students to take on greater and greater work responsibilities, through a ladder of apprenticeships, internships, and mentorships within the firm.

More can also be done to foster greater mutual appreciation between the local workforce and foreign workforce so that everyone more deeply respects the diverse roles played by each other in helping Singapore's open and complex economy to thrive. Such efforts have already begun, such as this documentary: https://www.channelnewsasia.com/watch/global-talent-local-impact-episode-2-4761431.

Further steps that can be taken include launching a new partnership between MOM's COMPASS, Singapore Citizenship Journey and Mentoring SG, to encourage foreign PMETs and newly-naturalised citizens to share their work experience with local youths, as well as nurture them.

Firms should publicly commit to investing in upskilling locals over time, with benchmarks and success stories to inspire participation. Companies could also offer clear progression pathways, showcasing how entry-level roles lead to advanced positions, thus making career trajectories more transparent and appealing to local students. By addressing these gaps upstream and fostering deeper collaboration between key stakeholders, Singapore can ensure its workforce policies better support sustainable economic growth and social harmony.

2) Building Career Resilience Through Lateral Skills and Flexible Work

To alleviate the uncertainties faced by the modern workforce, the Panel recommends policies to encourage workers to build career resilience by developing lateral skills and diversifying work experiences. This can be achieved through short-term roles, side hustles while employed full-time or taking short breaks to upskill. Workers should also be supported to take on additional company projects to broaden their skill sets. To safeguard their well-being, measures could include protections for gig workers, such as CPF contributions, insurance coverage, and protection from exploitative practices.

Singapore's workforce is increasingly anxious about job security: 40% of workers feared job loss in 2024, up from 25% in 2023, amid a doubling of retrenchments (NTUC, 2024). Over 14,320 workers were retrenched in 2023, with middle-aged workers most affected (Ministry of Manpower, 2024; 2023). Only 61.5% of retrenched workers secured re-employment within six months (Ministry of Manpower, 2023). As industries restructure and technological advancements outpace traditional career trajectories, individuals must adapt by acquiring varied skill sets and experiences to remain relevant.

Encouraging lateral skill development through flexible work arrangements allows workers to:

· Gain Diverse Experience: Short-term projects or side hustles enable skill diversification without leaving full-time roles.

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- Adapt to Market Needs: Continuous learning and career experiments build readiness for future opportunities.

- Reduce Career Risks: Multiple income sources and diversified skills provide a safety net during career transitions.

This approach benefits mid-career workers seeking to change industry, caregivers balancing personal and professional responsibilities, and young workers pursuing self-discovery while building employability. Businesses also gain access to a skilled and flexible workforce, to meet fluctuating demands.

Methods to operationalise this policy include:

- Skills Development Programmes: Provide subsidies for high-demand and transferable skills training, emphasising flexibility and adaptability.

- Worker Rights Protections: Mandate CPF contributions and insurance for gig workers, and establish safeguards against exploitation in short-term contracts.
- Internal Growth Opportunities: Encourage companies to create stretch assignments and cross-functional projects, for employees to build new competencies.

- Public Awareness Campaigns: Promote a cultural shift to view flexible work arrangements as a legitimate and sustainable career strategy.

This policy empowers workers to build career resilience proactively, boosts financial security in a volatile labour market, and fosters a workforce that is ready to meet the evolving demands of Singapore's economy.

3) Institutional support for National Servicemen

National Service (NS) impacts key milestones in the lives of those serving, especially delays in their studies or work. All parties (state, society and businesses) enjoying the benefits of NS should also contribute fairly to benefit NSmen. **Institutional support** assures Operationally Ready NSmen that they are cared for, with the state leading and tracking efforts, and all other relevant parties giving their fair share of support. This ought to come in two steps which balances principle and practicality.

On the first step, all relevant parties should help NSmen achieve more for their families, employers and themselves. This is principally driven by the need for all parties to appreciate that NS is a two-way street, with both NSmen and these other parties committing to support each other especially in need. Such assistance could include mentoring, networking and upskilling programmes for NSmen, as well as services to improve their mental resilience. The latter is relevant considering wider factors suggesting that men here do need help too (e.g. over 2 in 3 suicide victims being male, *per* Samaritans of Singapore, 2024).

A focus area under this step should be on how businesses are supporting NSmen. Now, businesses can tick a pledge to earn the "NS Mark", deeming them as "supportive" of NS. While this is a welcome step to invite businesses as key partners, more still needs to be done to achieve industry-wide support - only up to 1200 entities have been named as NS Mark awardees (either "basic" or Gold tier) (Ministry of Defence, n.d.), against 8900 medium and large enterprises as a simple

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comparison (Department of Statistics, 2022). Given more businesses (especially bigger ones) claiming to support Diversity, Equity and Inclusion (DEI) in their workforce, we should explore how DEI can be meaningfully broadened to help NSmen employees achieve more.

The second step entails tailoring of the support mentioned in the first. This is driven by the appreciation that NSmen will be affected differently. The need for this can be shown by various nuances. One nuance is on how to accurately identify NSmen with different or changing career aspirations. Surveys by the state can be rolled out throughout an NSman's reservist life to sieve out findings of his progress and aspirations prior to delivery of support. An NSman intending to pursue a career in a particular sector can then be matched to an industry mentor who may or may not be an NSman himself, as an illustration.

Another nuance is on grooming NSmen to be industry leaders in future, especially for aspiring non-officer NSmen who may not have had the opportunity to be developed as leaders at the get-go (i.e. during their full-time NS days). Here, the government can partner with businesses and specialist groups (e.g. Mentoring SG) to mentor and train NSmen in leadership and further management skills. Such a dedicated initiative can anchor confidence that any NSman, no matter his rank or background, can be a respected leader and achieve the same leadership goals. In fact, beneficiaries could later become mentors themselves!

Finally, such institutional support should be mandated to emphasise the two-way nature of NS. Objective metrics ought to be used for a start in measuring progress and enhancing accountability (e.g. satisfaction surveys to gauge usefulness of assistance to NSmen). It is also timely to consider what legal consequences may be had, as well as what redress the NSmen have if they believe the assistance is inadequate.

Annex D - Survey and FGD Results

Surveys and focus group discussion results available upon request. Please direct requests to youthengagement@nyc.gov.sg.

#TECHHACKS

Panel Recommendations on

Advancing Youths' Online Safety on Social Media Platforms

Recommendations by #TechHacks, a youth panel under the National Youth Council

#TechHacks Recommendations

Executive Summary

For youths in Singapore, the use of social media is a daily fact of life. While these platforms bring immense benefits to our lives, they are also spaces where online harms and dangers such as cyberbullying, harassment and misinformation lurk. The #TechHacks Panel sought to address two key issues: (1) strengthening mindfulness and awareness towards online harms on social media, especially among youths in Singapore, and (2) understanding youths' expectations in terms of safe online spaces in Singapore.

The #TechHacks Panel's primary and secondary research brought several key findings to light. First, the vastness and complexity of online spaces and their regulation can make it challenging to sense-make trends, patterns and pain points on social media platforms.

Second, this is not just an issue for social media platforms or governments and regulators. The complex intersection of technologies, harms and regulatory levers make it highly difficult for youths to navigate, make sense, and safeguard themselves in this space.

Third, there appears to be a gap between "expectation" and "reality" in online redress mechanisms, where youths are generally aware of the existence of such mechanisms but are often unaware and / or not confident about the considerations that go into the operation of these mechanisms. This results in an "accountability gap" or "trust deficit" when youths are directed to a tool that may not eventually provide them the results they seek.

Fourth, we appreciate that policy and regulatory levers against online harms need not be limited to laws and regulations. We embrace a wider notion of regulation and

appreciate that regulatory interventions can be escalated depending on the circumstances.

With these considerations in mind, we put forth the following proposed recommendations for consideration:

(1) An annual survey or study for online harms in social media spaces to take the pulse on the state of online harms amongst youths, so that the issue may be observed and addressed at a whole-of-society level.

(2) A conceptual framework of online harms, such as a "lifecycle model", to simplify online safety messaging, as well as provide youths with a clearer mental picture of online harms and key intervention points to resolve the issue.

(3) Applying the principle of accountability to addressing online safety issues on social media, with the consideration of measures such as enhancing responsiveness of online redressal mechanisms, enhancing public reporting, escalation of decisions to a third-party body, and reporting of online harms statistics to a designated regulator.

(4) Integrating youths as a discrete policy stakeholder group in designing policy and regulatory levers around online harms on social media spaces.

Following our term as Youth Panel members, we hope to organise a multi-stakeholder roundtable on youths and safe online spaces on social media platforms to present our findings and recommendations and have a moderated discussion on relevant issues. We invite organisations and stakeholders to provide us feedback on the recommendations herein, as well as to let us know if you are

#TechHacks Recommendations

A. Introduction

interested to collaborate and be a part of the Roundtable. Our #TechHacks Panel will continue our work to translate these recommendations into reality as we build towards our vision of a kinder, safer and healthier digital world for Singaporean youths.

Viewed through the eyes of a Singaporean youth, social media platforms and applications are not simply digital tools to stay connected – they are **a fact of life**.

1. As youths, we use these platforms to make and maintain social connections[1]; follow content, individuals and groups we appreciate; entertain and express ourselves; organise events; and engage in social discourse. At a societal level, we also recognise that social media platforms are tools to foster digital social cohesion. Yet, as a window to a wider world, social media platforms and applications are also spaces where online harms – such as cyberbullying, mis- and disinformation and harassment – can be perpetrated. As future stewards, we aspire to help contribute to a kinder, safer and healthier digital world. For us, this Policy Paper ("**Paper**") is one small but collective step towards that vision.

2. The #TechHacks Youth Panel ("**#TechHacks Panel**") was first constituted by the National Youth Council ("**NYC**") in November 2023 as part of a broader Youth Panels initiative. The Youth

Panels are aimed at providing youths with the opportunity to "co-create recommendations with government agencies on policy issues".[2] Three other Youth Panels have also been constituted alongside the #TechHacks Panel. These cover the themes of environment and sustainability ("**GreenHacks**"), job literacy ("**JobHacks**") and financial literacy ("**LifeHacks**"). We share a collective vision of contributing towards making Singapore a better home for today and tomorrow. More information about the #TechHacks Panel's constitution can be found in **Annex A**.

3. The mandate of the #TechHacks Panel is to **provide the Singaporean youth perspective on technology and digital well-being while complementing ongoing efforts and initiatives**. This Paper contains #TechHacks Panel's findings and preliminary recommendations to develop safer social media spaces in Singapore. In particular, we propose the need for greater clarity, relatability and spaces for informed participation in online safety policy-making in Singapore. To this end, this Paper will set out: (a) the #TechHacks Panel's objective; (b) our research approach and findings; (c) opportunity areas and recommendations; and (d) our next steps, including calling for a **multi-stakeholder roundtable** on youths and safe online spaces on social media platforms.

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[1] https://www.straitstimes.com/opinion/instead-of-banning-kids-from-online-spaces-here-s-what-we-should-offer-them-instead. See in particular, "Children and young people go online primarily to socialise with their peers. Online spaces are one of the few avenues our overscheduled children have to interact freely with each other, which is crucial for their well-being."
[2] National Youth Council, "Factsheet and FAQs on Youth Panels".

#TechHacks Recommendations

B. The #TechHacks Panel's Objective

4. The objective of the #TechHacks Panel is to address two key issues as follows: (1) strengthening mindfulness and awareness towards online harms on social media, especially among youths in Singapore, and (2) understanding youths' expectations in terms of safe online spaces in Singapore.

5. In line with the themes of clarity, relatability and greater informed participation mentioned above, we aim to address this from several perspectives.

- First, we propose the development of a youth-specific annual survey on progress towards online safety in Singapore, to develop a better and more granular understanding of the landscape across time and youth demographic groups.

- Second, we propose to put forth a concise yet clear conceptual model of online harms, such as a lifecycle-based model of online harms, to assist in problem and intervention identification.

- Third, we recognise increasing calls for not just greater digital governance, but greater digital accountability, among social media platforms to address online harms.

- Fourth, we propose to cement the need for greater youth involvement in digital policymaking discourse going forward, as well as develop a youth aspiration statement, to reflect youths' vision for safer, kinder and healthier online spaces.

#TechHacks Recommendations

C. Research Approach and Findings

6. The #TechHacks Panel conducted its preliminary research through a mix of secondary and primary research. These research efforts guided us towards developing our four proposed recommendations, which are elaborated below. We conducted secondary research through a range of various sources, including desktop research, as well as through discussions and informal conversations with public, private and people stakeholders. A list of stakeholders with the #TechHacks Panel conversed over the course of the Panel's term can be found in **Annex B**. We also conducted primary research through a survey and focus group discussions ("**FGDs**"). Findings from both the #TechHacks Panel's secondary and primary research are elaborated below. More information about how we conducted our research can be found in **Annex C**.

7. The #TechHacks Panel also presented our proposals to key stakeholders, including to members of the public at the Youth Policy Forum in August 2024.[3] Participants of the forum provided their feedback on the recommendations via an online survey that was administered to them. Feedback from the Youth Policy Forum allowed us to refine our ideas, ensuring that they addressed the suggestions from the public. More information on the Youth Policy Forum survey can be found in **Annex D**.

8. Our key takeaways from secondary research are as follows. First, **the online space and its regulation is an immensely wide and complex field**. The need for the regulation of online content is practically as old as the Internet itself. Even in Singapore, there are a multitude of actors involved in this space, with many looking at different perspectives, managing various levers, and seeking to address the issue at various levels. It is therefore important that any proposed policy recommendations from the #TechHacks Panel should seek to complement existing initiatives, levers and measures, rather than seek to supplant any of them. At the same time, we believe there may be value in having an annual survey or study for online harms in social media spaces to take the pulse on the state of online harms amongst youths, so that the issue may be observed and addressed at a whole-of-society level. We elaborate on this proposal in the Recommendations section below.

9. Second, it is important to note that **online harms are *not* a monolithic whole**. No two online harms are the same: the causal factors and resolution process for cyberbullying, for instance, are often significantly different to that of misinformation or disinformation. Much ink has been spilt locally and globally attempting to define and elaborate on these harms. We do not see the need for the #TechHacks Panel to attempt its own definition and description of each online

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[3] For more information on the Youth Policy Forum, see <https://www.channelnewsasia.com/brandstudio/YouthPolicyForum>.

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harm. Yet, at the same time, we note that the **technology-harms-levers complex** (that is, how evolving technology, different harms and available levers interact for each type of online harm) also **creates complexities that can make it highly difficult for youths to navigate and make sense of this space**. We therefore think that there may be some value in simplifying the picture for youths so that youths can have a clearer mental picture of online harms on social media, and understand some overall intervention points to better resolve the issue. To this end, we propose to provide a simplified yet coherent conceptual model for youths and their support networks to appreciate what online harms are and how they work. The notion of a "lifecycle-model" of an online harm is something that we will elaborate upon below.

10. Third, the #TechHacks Panel appreciates that **policy and regulatory levers against online harms need not be limited to the usual suite of laws and regulations**. While trite, this is worth noting as a messaging point to our fellow youths. Laws and regulations in Singapore, such as the Code of Practice for Online Safety under the amended Broadcasting Act, and the Online Criminal Harms Act, understandably grab headlines. Such laws and regulations, however, should not be seen as the only, or even main, panacea for online harms.[4] Similarly, mandating legal compliance

is often not the only tool in a regulators' toolbox in influencing and effecting policy outcomes. Many interventions can be undertaken below the level of laws and regulations, such as industry self-regulation, regulatory sandboxes, policy co-designing programmes, industry codes of conduct and public education, among others. To this end, we draw on John Braithwaite's notion of a "regulatory pyramid", which embraces a widened notion of "regulation" and highlights that regulatory interventions can be escalated depending on the need for control and compliance.

11. The #TechHacks Panel notes this point above not as a recommendation, but as a collective landing point. While providing a youth perspective, this is also a message that we wish to send to all youths – more laws and regulations may bring compliance, but may not necessarily bring cooperation or matters to a meaningful conclusion. That said, we also believe that Singapore should not shy away from implementing targeted laws and regulations where there is a clear gap that can be addressed by such interventions. We note, for instance, the proposals put forward by the Ministry of Law ("**MinLaw**") and the Ministry of Digital Development and Information ("**MDDI**") to, among other things, introduce new statutory torts for specified online harms

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[4] A similar point was recently made by Minister for Communications and Information Josephine Teo in a speech, where she said that legislation need not be the only answer to online harms because of issues such as limited scope, enforcement, and the multi-faced nature of the issue. See Straits Times, "S'pore to require app stores to verify age of users to safeguard children" (5 July 2024) <https://www.straitstimes.com/singapore/s-pore-to-require-app-stores-to-verify-age-of-users-to-safeguard-children> (accessed 6 July 2024).

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for which claims may be brought before the Singapore courts. If the proposals come to pass, specified online harms that will be legislatively recognised as statutory torts include online harassment, misuse of inauthentic material, child abuse material, intimate image abuse, child abuse material and hate speech, among others. This is an example of a targeted, outcome-focused and technology-neutral intervention to deal with specific online harms.[5]

Fourth, we observe the existence of a **gap between "expectation" and "reality" in online redress mechanisms**. Currently, the vast majority of key social media platforms have some form of online redress mechanisms. These include reporting mechanisms and blocking mechanisms. While youths have some notion of these mechanisms and how these could assist them in addressing some issues when encountering an online harm, they are also often unaware or not confident on the complex considerations that go into whether, for instance, an offending post is blocked. This results in an "accountability gap" (or a "trust deficit") arising from the fact that youths are directed to utilise tools that eventually may not give them the results they seek.

12. To address this accountability gap, we believe that there is a need for: (a) greater and clearer education on what such mechanisms can and cannot do, and the considerations that underlay how they operate; (b) greater explainability from social media platforms regarding their assessments on requests for blocking / reporting content; and (c) moving away from the conception that these are "tools" or "mechanisms", and instead see these as "services" / "requests" that reflect the people-oriented considerations that content moderation teams in social media companies consider internally.

I. Annual survey on the state of online harms on social media spaces amongst youths in Singapore

13. In conducting our research, we benefited greatly from in-depth research on Singaporean youths' experiences of online harm on social media that had been conducted by local institutions and organisations. These include, for instance, the then-Ministry of Communications and Information ("**MCI**")'s study on harmful online content in May 2023,[6] and SG Her Empowerment's Safeguarding Online Spaces Study.[7]

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[5] MinLaw and MDDI, Public Consultation Paper on Enhancing Online Safety: Empowering Singaporeans to Seek Relief from Harmful Online Content and Conduct, and Hold Responsible Parties Accountable, < https://isomer-user-content.by.gov.sg/27/4ab5e313-5c65-464c-9cb8-64277d91dcb9/online-harms-full-public-consultation-paper.pdf#page7> (accessed 21 January 2025).

[6] Ministry of Communications and Information, "Survey by MCI finds that two thirds of Singapore users encountered harmful online content" (17 October 2023) <https://www.mci.gov.sg/media-centre/press-releases/survey-by-mci-on-harmful-online-content-encountered-by-sg-users/> (accessed 5 July 2024).

[7] SG Her Empowerment, "Safeguarding Online Spaces (SOS) Study" <https://api2.she.org.sg/uploads/SHE_Safeguarding_Online_Spaces_(SOS)_Study_8Feb20242.pdf> (accessed 5 July 2024).

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14. Building off the success and value of these surveys, the #TechHacks Panel proposes that there is value in **commissioning an annual survey or study specifically for online harms in social media spaces with the aim of supporting evidence-based policy- and decision-making**.[8] This study would be aimed at addressing several needs in the space:

    a. **Alignment in scope:** It would be beneficial to have a unified study that provides a consistent approach to surveying the landscape for online spaces in Singapore. It is a well-known phenomenon in social sciences that despite the apparent objectivity of studies, results could be affected by factors such as how a survey question is framed, the context provided to a survey, and the various demographic groups targeted in the survey. Having a unified whole-of-landscape study could help reduce the potential of such aberrations, as well as reduce redundancy of effort in conducting these surveys.

    b. **Alignment in time:** It would also be beneficial to conduct this study on an annual, longitudinal basis. Such a study would allow for the comparison of trends over regular time periods, and ensure that consistent data is available for policymakers, industry and other stakeholders in this space.

15. Such an annual survey, if implemented, would provide policymakers, industry and civil society groups with a common understanding of the prevailing landscape of how youths are impacted by online harms and progress in efforts towards online safety in Singapore. It would also allow for finer segmentation of demographic groups within the youths (e.g. for children from 6 - 12 years of age; for teenagers aged 13 - 19 years of age; young adults of 20 - 25 years of age; and young working adults of 25 - 34 years of age).[9] Specific objectives of the survey might include, for instance, understanding the propensity of certain youth demographic groups towards common online harms, understanding the causal factors for common online harms (i.e. whether the causal factors emanate from online or offline sources), or understanding the state and evolution of youths' responses towards online harms. The survey can also provide actionable insights on the interventions that youths may likely be receptive towards.

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[8] World Economic Forum, "Technology Policy: Responsible Design for a Flourishing World" (October 2024) <https://www3.weforum.org/docs/WEF_Technology_Policy_Responsible_Design_Flourishing_World_2024.pdf>.

[9] In our view, it is pertinent to obtain greater granularity in studying the prevalence and impact of online harms on youths, given the wide age ranges and development stages. For instance, pre-teenagers and teenagers may be more likely to encounter age-inappropriate material, or require greater guidance dealing with mis- and disinformation, whereas older, working-age youths may be more likely to encounter online harms such as statements affecting one's reputation, doxxing, impersonation and the misuse of personal information. While we acknowledge that this would require careful planning and implementation (such as the provision of accommodations for younger survey participants), we believe that such a study would provide information heretofore unavailable.

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16. We add that a key reason for having a youth-focused study is because: (a) young people and youths tend to be the heaviest users of social media out of all age groups; (b) because of their exposure, youth and vulnerability, they may be more susceptible to online harms (or committing online harms upon others; and (c) their responses to online harms can be very different from the responses of other user groups of social media. Nevertheless, the #TechHacks Panel would be open to seeing other types of studies through which such information could be gathered depending on the nature of the research problem, such focus group discussions or qualitative interviews.

17. In this regard, we think that such an effort could be optimally overseen by an agency such as MDDI, with support from the NYC (or its parent ministry MCCY) and the Media Literacy Council. The MDDI is no stranger to conducting online safety-related polls for society at large, with the Online Safety Poll being a prime example.[10] MDDI would also be able to directly utilise the poll results to directly inform its policy and operational work through its existing partnerships and communication channels with the relevant social media platforms and companies. This effort could be supported by a specialised agency like NYC (or MCCY) and / or the Media Literacy Council, which could help inform the development of the survey based on demographic nuances of Singaporean youths.

18. We add that the intention of this survey is not to act as a substitute for all other efforts at surveying the landscape for online harms faced by youths. For instance, there will still be space for other stakeholders and researchers to conduct studies on online harms in other online spaces, such as gaming platforms or Internet discussion boards. There will also be space for further studies to be done on specific demographic groups, such as the impact of online harms on youths from different generations, or the impact of online harms on females versus males. Nevertheless, we believe that having a consistent survey that is supported by key stakeholders would help reduce the ad hoc nature of current surveys and provide consistent and broad datasets for all stakeholders.

II. A lifecycle-based model of online harms

19. Our research shows that despite the significant amount of research and material available online about online harms on social media platforms, such materials are mostly focused on several areas: documenting the experience of online users faced with online harms, implications of online harms on victims and society, the effectiveness of various redress mechanisms available to address online harms, and proposed regulatory approaches to online harms. There appears, however, to be **a gap in increasing a common sense of relatability and understandability of online harms for the demographic group for whom social**

[10] MDDI, "MDDI Survey: Two Thirds of Respondents Encountered Harmful Online Content" (25 July 2024), <https://www.mddi.gov.sg/mddi-survey-two-thirds-of-respondents-encountered-harmful-online-content/>.

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media tools are most intrinsically woven into their lives: youths.

20. The most recognisable attempts to help youths (and other stakeholders) better make sense of online harms are the World Economic Forum's Typology of Online Harms (published in August 2023)[11] and the Australian eSafety Commissioner's report on its engagement strategy for young people (published in 2021)[12]. The former groups key online harms into several categories, including threats to personal and community safety, harm to health and well-being, hate and discrimination, violation of dignity, invasion of privacy, and deception and manipulation, while highlighting the content, conduct and contact risks arising from these common online harms. The latter covers, among other things, how to improve relatability of online safety messaging for youths, and sets out youths' aspirations for a safe online space.

21. We recognise that online harms on social media is a complex and ever-changing paradigm. There are risks in attempting to simplify the space, such as oversimplification and overlooking of complex causal and circumstantial factors contributing to online harms. Yet, on balance, **we think that there is merit in considering a concise yet clear model exemplifying common online harms**.

Unlike the World Economic Forum's Typology and the Australian eSafety Commissioner's report, which set out taxonomies for online harms and how to communicate online safety messaging to youths, there has far been no work (as far as we are aware) tracing the occurrence of an online harm for youths.

22. Within this paper, we propose what a **lifecycle-based model of online harms** could look like, and how it could help youths and their support networks understand threat vectors, intervention points and gain a better overall picture of common online harms faced by youths. In developing this model, we drew inspiration from interactive infographics developed by CNA on love scams, as an example of how an online harm could be explained concisely to members of the public.[13]

[11] World Economic Forum, "Toolkit for Digital Safety Design Interventions and Innovations: Typology of Online Harms" <https://www3.weforum.org/docs/WEF_Typology_of_Online_Harms_2023.pdf> (accessed 23 June 2024).

[12] eSafety Commissioner, Western Sydney University, "Consultations with young people to inform the eSafety Commission'er Engagement Strategy for Young People: A Report on the Findings", <"https://www.esafety.gov.au/sites/default/files/2022-01/YRRC%20Research%20Report%20eSafety%202021_web%20V06%20-%20publishing_1.pdf?v=1719123938819> (accessed 23 June 2024).

[13] CNA, "Anatomy of a Love Scam" (20 October 2024) <https://www.channelnewsasia.com/interactives/love-scam-how-it-works-4664851>.

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23. A lifecycle model of online harms could be envisioned as follows:

Creation and posting

Harmful online content can be generated by individuals, groups, or even automated systems (like bots). The motivations behind the creation of such content can vary widely, from intentional harm to ignorance of the potential impact. In some cases, harmful content is produced and spread for financial gain, political influence, or social manipulation.

It is important to note that while this stage marks the start of an online harm, the causal factors that lead to this point could arise for some time before this moment. This is especially so in some cases of cyberbullying and harassment, where there may already be an existing relationship and history between a perpetrator and victim prior to the creation of the harmful online content.

Reintegration

At this stage, victims usually gradually begin to reintegrate into their digital lives. This can be a long and challenging process, with victims often also requiring support from trusted networks.[14] Victims could take a variety of steps, such as adding further security to their social media accounts, removing their social media accounts, migrating to another social media platform, or ceasing the use of social media altogether. We note, however, that there is eventually a need for victims to re-join digital networks (even if these are not social media platforms), given the degree of integration between our digital and physical lives.
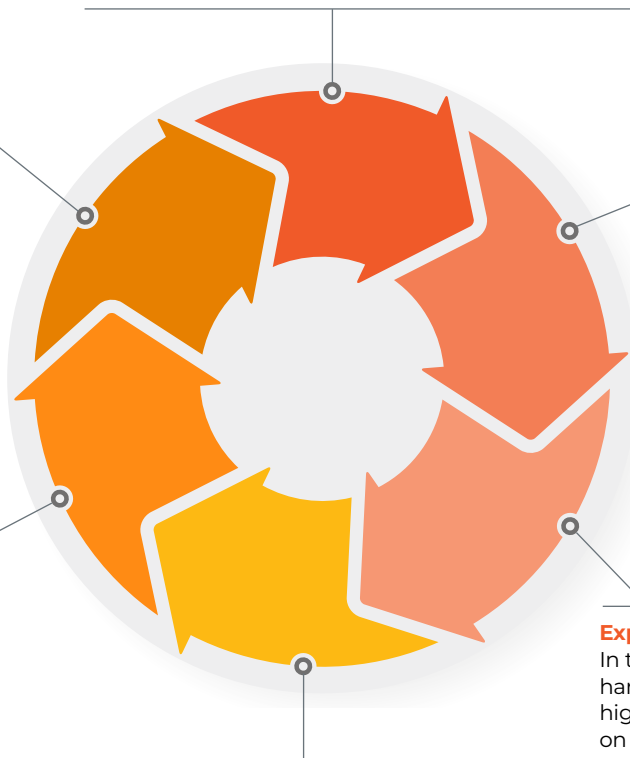
Amplification and spread

Harmful content published online can be amplified and spread rapidly through social media platforms. Algorithms play a significant role in this stage, as content that engages users (even negatively) can be promoted and reach a wide audience quickly. "Going viral" is the colloquial term used to describe the exponential spread of such content. This phase – or the potential of getting to this phase – is often what triggers or exacerbates negative experiences in victims that perpetrators hope to generate, while making intervention more challenging.

Remediation and support

Remediation involves addressing the harm caused by the content, which may include removing the content, banning or sanctioning the perpetrators, and providing support to the victims.

Platforms could review the content and decide to take action on the content, the perpetrator, or both. Authorities could investigate and take action against the perpetrator. Support services and networks (such as trusted family members and friends) can offer psychological counselling, legal advice, or help with securing one's online presence.

While this is the stage where intervention is commonly taken, we note that it need not be the only, or most effective, stage for intervention.

Exposure and experience of harm

In this stage, victims encounter the harmful content. The experience is highly subjective and can vary based on the type of online harm, the content's nature, the victim's specific vulnerabilities, and the context in which the content is encountered. Some victims may experience psychological harm, such as anxiety or distress, while others may face more tangible consequences, like threats to their physical safety or damage to their reputation.

Reporting and moderation

In many cases, victims of online harms or bystanders (such as group moderators on a social media platform) can report harmful content to platforms or authorities. Platforms typically have content moderation systems in place to review reported content and decide whether it violates their policies. The effectiveness of this stage depends on the platforms' moderation policies, the clarity of reporting mechanisms, and the speed and accuracy of the response.

[14] Based on the #TechHacks Panel's primary research, 43% of youths strongly agreed or agreed that it would be difficult to be / participate online again if one was a victim of online harm. Further, 58% strongly agreed or agreed that support networks are essential in helping them cope with online harm and eventually regain confidence in resuming online activities.

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24. A lifecycle-based model such as that could be useful as an early "self-diagnosis" tool for youths and their support networks. One could imagine, for instance, a plausible scenario where a youth user could be facing a viral incident of online harm, such as a cyberbullying incident attempting to shame and falsely demean the user. Out of desperation, the youth user decides to delete her social media presence altogether, depriving herself of the potential benefits of a healthy social media presence. With the lifecycle model, the youth (or her support networks) could instead be guided towards reporting the perpetrators to social media platforms (or to a government agency, such as the forthcoming government agency focused on online harms[15]), making a police report, or where the context is appropriate, posting a response that calmly addresses any falsehoods. In further iterations of the model, the model could include suggested platforms or avenues for help and assistance that a youth could turn to for targeted guidance and assistance.[16]

25. We add that the model could be developed as a joint effort between youth representative stakeholders, such as representatives from the #TechHacks Panel, industry players (e.g. Meta, Google and Bytedance), government policymakers and regulators, and supported by input from civil society or academic representatives. The model could then be issued as a resource by the forthcoming government agency focused on online harms.

26. We note that this model may not be applicable to all online harms. In some cases, the "exposure and experience of harm" stage could arise at the start – for example, where a perpetrator shares a non-consensual deepfake imagery about the victim directly with the victim, causing the victim to feel threatened and vulnerable. In other cases, there may be harm caused in spite of there not being amplification and spread of the relevant content, simply because of the highly compromising nature of the content itself. It is important to bear in mind that this is simply a model of reference, and that the journey that victims and perpetrators need not follow this model in a linear fashion. Future iterations could further explore variations in the life stages of specific online harms.

27. To address concerns about oversimplification and inability to capture important contextual points, we invite stakeholders to join us in adding to this model, so that it is able to serve the purpose of providing a simplified yet coherent model for youths in envisioning online harms on social media.

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[15] BCNA, "New Singapore government agency to tackle online harms such as cyberbullying, sharing of intimate images" <https://www.channelnewsasia.com/singapore/harmful-content-online-new-agency-cyberbullying-4603406>

[16] We also note that the model should, where possible, be supported by data showing implications of how young users have responded when they have encountered online harms, and what kind of online harms have prompted them to take such a course of action.

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III. Adopting an accountability-based approach to addressing online harms on social media

28. As mentioned above, a key finding that emerged from the #TechHacks Panel's primary and secondary research is about a gap between "expectation" and "reality" in online redress mechanisms amongst youth. One might call this an accountability or trust gap, arising from youths not having a clear understanding on the considerations that go into how social media platforms categorise, address and triage online harms reporting. **This gap can be seen often in how youths in our primary studies perceive platform redressal mechanisms, such as reporting tools, as ineffective as they "received no updates from platforms after flagging harmful online content", or they were deterred by "lack of updates on their reports" and "lack of justification… to explain the outcomes of their reports".**

29. In our view, this could potentially be addressed by considering the adoption of an "accountability-based approach" to tackling online harms on social media platforms. In the field of data protection, accountability is a core plank of many data protection laws around the world, including under the EU's General Data Protection Regulations ("**GDPR**") and Singapore's Personal Data Protection Act ("**PDPA**"). Under the GDPR, accountability is reflected under Art 5(2) as a data controller being "responsible for, and (being) able to demonstrate compliance with" other key data protection principles, such as

lawful processing, data minimisation and purpose limitation.[17] In Singapore's context, accountability under the PDPA has been described as "an organisation's promise to customers that their personal data will be handled respectfully and carefully", and that it is "about being able to demonstrate to customers that measures which pre-emptively identify and address risks to personal data have been put in place".[18] In essence, accountability is about organisations having measures and tools in place that operationalise applicable legal requirements, and demonstrate them on request to relevant stakeholders such as regulators and data subjects. At a broader level, it represents a shift in focus and responsibility from consumers to organisations that are better resourced and equipped to address digital challenges.

30. It may be possible to conceptualise and adapt the application of the accountability principle to addressing online safety issues in social media spaces. As this is not an academic paper, this is not the appropriate platform to undertake a full-fledged analysis of transplanting concepts between different fields of technology policy and regulation. We are also mindful that transplanting concepts (no matter how well-traversed) from one field to another carries its challenges. Nevertheless, we believe that the **fundamental premise for accountability in data protection has useful parallels for online safety:** to help build user trust in technologies and social media platforms by providing greater touchpoints between the social media platforms and their users. We note as well

[17] General Data Protection Regulations, Article 5(2).
[18] PDPC, "Keynote Speech by Mr Yeong Zee Kin, Deputy Commissioner of PDPC, at the 39th International Conference of Data Protection and Privacy Commissioners on Thursday, 28 September 2017, at the Kowloon Shangri-La Hotel, Hong Kong" (28 September 2017), <https://www.pdpc.gov.sg/news-and-events/press-room/2017/09/keynote-speech-by-mr-yeong-zee-kin-thursday-28-september-2017> (accessed 5 July 2024).

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that the notion of enhancing accountability in online spaces – be it from social media platforms, users or other stakeholders – is not a new one, and that there is a growing chorus from reputable stakeholders for this. This can be seen from the following:

a. On 14 November 2024, the Australian Government announced plans to legislate a "digital duty of care" requiring digital platforms "proactively keep Australians safe and better prevent online harms".[19] A statutory duty of care places on organisations (in this case, digital platforms) an overarching obligation to exercise care in relation to user harm, including through risk assessments and implementing mitigation measures, and to continuously evaluate the effectiveness of these measures.[20]

b. On 22 November 2024, MinLaw and MDDI announced new measures to enhance online safety and support victims of online harms. One of the proposals being considered includes improved user disclosure,[21] where "user information of perpetrators of online harms" could be made available to complainants to "improve accountability

by deterring people from committing such harms [emphasis added]".[22]

c. As part of the Infocomm Media Development Authority's ("IMDA") holistic approach to online safety, IMDA will publish annual online safety reports submitted by designated social media services to "help users make informed choices on services that provide a safe online environment".[23] Further, and in particular, under the Code of Practice for Online Safety issued by IMDA, designated social media services are required to provide an account of "measures the (social media service) has put in place to combat harmful and inappropriate content, for publishing on IMDA's website."[24]

d. The World Economic Forum notes that accountability and responsibility are being increasingly emphasised under overseas regulatory frameworks such as the EU's Digital Services Act and the UK's Online Safety Act, and the industry players are also taking "proactive measures" to enhance accountability. The World Economic Forum also notes that having metrics to facilitate decision-making, guide resource allocation and

[19] The Hon Michelle Rowland MP, "New Duty of Care obligations on platforms will keep Australians safer online" (14 November 2024), <https://minister.infrastructure.gov.au/rowland/media-release/new-duty-care-obligations-platforms-will-keep-australians-safer-online> (accessed 18 November 2024).

[20] Department of Infrastructure, Transport, Regional Development, Communications and the Arts, Statutory Review of the Online Safety Act 2021 Issues Paper (April 2024), <https://www.infrastructure.gov.au/sites/default/files/documents/online-safety-act-2021-review-issues-paper-26-april-2024.pdf>.

[21] Zhaki Abdullah, "More ways proposed for victims of online harms to seek redreess, including getting content blocked" (22 November 2024), <https://www.straitstimes.com/singapore/broader-measures-proposed-for-victims-of-online-harms-including-getting-access-to-content-disabled?utm_campaign=ST_Newsletter_EDITORSPICK> (accessed 30 November 2024).

[22] Zhaki Abdullah, "askST: How can new laws help victims of online harms?" (22 November 2024) <https://www.straitstimes.com/askst/askst-how-can-new-laws-help-victims-of-online-harms?utm_campaign=ST_Newsletter_EDITORSPICK> (accessed 30 November 2024).

[23] IMDA, "Enhancing Online Safety in Singapore" <https://www.imda.gov.sg/regulations-and-licensing-listing/content-standards-and-classification/standards-and-classification/internet/online-safety> (accessed 5 July 2024).

[24] IMDA, Code of Practice for Online Safety, < https://www.imda.gov.sg/-/media/imda/files/regulations-and-licensing/regulations/codes-of-practice/codes-of-practice-media/code-of-practice-for-online-safety.pdf> (accessed 21 January 2025).

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enable benchmarking also helps foster accountability.[25]

e. At a recent event organised by Stanford University's Cyber Policy Centre and the Biden-Harris Administration's Kids Online Health and Safety Task Force, participants recognised the "strong demand for accountability from the tech industry and policymakers", with "calls for an industry baseline for youth safety measures".[26]

31. In this regard, some categories of measures that could be explored to narrow the accountability gap that presently exists between youths and social media platforms include:

a. Enhancing the responsiveness of online redressal mechanisms, including by ensuring greater follow-up with users who report online harms;

b. Enhancing public reporting of trust and safety policies and mechanisms;[27]

c. Considering, in specific and justifiable situations, the escalation of decisions made by social media platforms to a third-party body or platform should a user not be satisfied with how a social

media platform has addressed his or her report or complaint;

d. Requiring the reporting of how much and what types of harmful content Singapore users encounter on their platform to a regulator (which we understand is now mandated by IMDA on Designated Social Media Services under the Code of Practice for Online Safety); and

e. Continuously reviewing these measures to ensure that they remain relevant, effective and fit-for-purpose for the prevailing online environment.

32. We add that achieving greater accountability in the online safety space requires a concerted effort from not just social media platforms, but also government, users, and other stakeholders. For example, social media platforms should not simply be forced to take up measures that increase accountability (e.g. mandatory reporting).

33. Similarly, we consider that blanket bans,[28] such as moves in other jurisdictions to implement fixed age restrictions on social media, may not be the most ideal solution for Singaporean youths who are

[25] World Economic Forum, "Why measuring digital safety can protect us online – and how we do it" (6 June 2024) <https://www.weforum.org/agenda/2024/06/safer-digital-future-data-driven-approach-measuring-digital-safety/> (accessed 5 July 2024).

[26] Stanford University, "Key Findings from Stanford Event with Youth Online Safety Leaders & Federal Task Force" (21 March 2024) <https://cyber.fsi.stanford.edu/news/youth_online_safety_workshop_summary_20240313> (accessed 5 July 2024).

[27] https://www.straitstimes.com/opinion/instead-of-banning-kids-from-online-spaces-here-s-what-we-should-offer-them-instead. See especially "They are urging platforms and governments to do several things… (including) provide standardised, easily accessible and well-explained reporting processes across diverse platforms…".

[28] Alasdair Pal and Byron Kaye, "Australia proposes 'world-leading' ban on social media for children under 16" (7 November 2024), <https://www.reuters.com/technology/cybersecurity/australia-proposes-ban-social-media-those-under-16-2024-11-06/>. See also "Australia passes social media ban for children under 16" (28 November 2024), <https://www.channelnewsasia.com/world/australia-pass-social-media-ban-children-under-16-facebook-twitter-instagram-tiktok-4776401?cid=internal_sharetool_ipad_28112024_cna> (accessed 30 November 2024).

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expected to learn how to grow, live and learn to live in a digital-first environment.[29] Instead, social media platforms could also be encouraged through incentives to understand that acting in an accountable manner and being accountable to users carries significant downstream benefits for their organisations and business models. Through public education efforts, more users can also learn to trust and rely on online platforms that tangibly demonstrate efforts at being more accountable to users.

IV. Recognising youths as a discrete stakeholder consultation group alongside government, industry, civil society and academia

The #TechHacks Panel aspires to **dispel the notion that youths are merely users, beneficiaries of policies, and inadvertent victims of online harms on social media platforms**. As mentioned at the outset, leading our lives on social media platforms is part of our way of life – we are digital-by-default. We therefore hope that policies regarding and affecting youths' participation in online spaces can similarly be **youth-by-design, and by-default**.[30]

34. As the World Economic Forum emphasised in a recently published guide on technology policy-making, "built-in by design" (be it principles such as privacy, accountability or safety, or stakeholder focuses such as youths) helps ensure that "societal implications are addressed at the foundational level, rather than being treated as an afterthought or addressed reactively once issues arise".[31]

35. First, the #TechHacks Panel recommends **integrating youths as a *discrete* policy stakeholder group from the earliest stages of designing policy and regulatory levers** around online harms on social media spaces, in such a way that safeguards our vision of safe online spaces. Just as it is normal today for multi-stakeholder policy discussions around technology policy issues to involve consultations with industry, government, academia and civil society, we hope that where discussions involve a youth element, that youths should have a voice at the table as well. Doing so would also help ensure that policies, programmes and communications that are aimed at improving online safety on social media spaces will be made more accessible for youths as well.

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[29] Amanda Third, "Instead of banning kids from online spaces, here's what we should offer them instead" (16 September 2024), https://www.straitstimes.com/opinion/instead-of-banning-kids-from-online-spaces-here-s-what-we-should-offer-them-instead.

[30] Amanda Third, "Instead of banning kids from online spaces, here's what we should offer them instead" (16 September 2024), https://www.straitstimes.com/opinion/instead-of-banning-kids-from-online-spaces-here-s-what-we-should-offer-them-instead. See in particular, "We need to move beyond a protectionist focus and work with children themselves to build the very best digital environments we can imagine."

[31] World Economic Forum, "Technology Policy: Responsible Design for a Flourishing World" (October 2024) <https://www3.weforum.org/docs/WEF_Technology_Policy_Responsible_Design_Flourishing_World_2024.pdf>.

D. Opportunity Areas and the #TechHacks Panel's Proposals

36. We highlight, for instance, an area in which having youths' perspectives from the outset could improve digital policymaking: online safety messaging. A key finding of the Australian eSafety Commissioner's recent report on engaging young people in online safety was that young people wanted online safety messaging to be relevant, relatable and appealing, and that young people "should be engaged in the design of online safety messaging" so as to improve the effectiveness of such messaging for fellow youths.[32] While we understand the need to be careful in transplanting suggestions from outside our local context, we believe that engaging youths early in the lifecycle of digital policymaking would help ensure that digital policymaking takes into account the needs, priorities, and aspirations of youths in Singapore.

37. Similarly, the #TechHacks Panel believes that it is important for local youths' perspectives to be included in international and cross-border online safety discussions. For instance, with the upcoming establishment of the Online Safety Commission dedicated to online harms in Singapore,[33] as well as the recent announcement of the establishment of the Global Online Safety Regulators Network ("**OSRN**"),[34] we note that it would be important and valuable for local youths' perspectives to be heard at such multilateral fora should the relevant regulatory agency from Singapore eventually participate in the OSRN. Youths would be able to contribute, for instance, by: (a) sharing lived experiences towards online harms and online safety in Singapore; (b) acting as youth thought leaders and ambassadors in ensuring a pragmatic and sensible balance between digital innovation and online safety; and (c) establishing mindshare for Singapore's perspectives on global digital etiquette and youths' aspirations for a safer World Wide Web. These points would contribute to the GOSRN's three strategic priorities for 2025 to 2027,[35] especially in the area of contributing to the evidence base of online safety and surfacing best practices.

38. Second, flowing from the last point above, we recommend **developing a localised Youth Aspiration Statement** to act as a policy compass for what youths aspire to see in social media and online spaces. In other words, what does "good" look like to youths? To this end, we found through our surveys that what Singaporean youths perceived as safe online spaces were environments that were non-judgmental, where they could feel safe from harassment and cyber-bullying, and based on open-mindedness and mutual respect. Our research has also shown that Singaporean youths believe they can play a key role in creating safe online spaces by:

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[32] eSafety Commissioner, Western Sydney University, "Consultations with young people to inform the eSafety Commission'er Engagement Strategy for Young People: A Report on the Findings", <"https://www.esafety.gov.au/sites/default/files/2022-01/YRRC%20Research%20Report%20eSafety%20 2021_web%20V06%20-%20publishing_1.pdf?v=1719123938819> (accessed 23 June 2024).

[33] CNA, "New Singapore government agency to tackle online harms such as cyberbullying, sharing of intimate images" <https://www. channelnewsasia.com/singapore/harmful-content-online-new-agency-cyberbullying-4603406>.

[34] https://www.esafety.gov.au/about-us/who-we-are/international-engagement/the-global-online-safety-regulators-network.

[35] Global Online Safety Regulators Network, Three-Year Strategic Plan (2025 – 2027), <https://www.esafety.gov.au/sites/default/files/2024-12/GOSRN_ Three_Year_Strategic_Plan_2025_27.pdf?v=1733788800038> (accessed 17 December 2024).

#TechHacks Recommendations

D. Opportunity Areas and the #TechHacks Panel's Proposals

- Being supportive and non-judgmental of each other as friends;

- Lending a listening ear for victims of online harms; and

- Being conscious of the impact that one's posted content can have on other online users;

- Creating healthy boundaries around the use of social media platforms;

- Calling out negative behaviours online; and

- Raising literacy and awareness around online safety.

Similar to work that has been done by the eSafety Commissioner in Australia,[36] we thus hope to see the development of a **Youth Aspiration Statement that will set out Singaporean youths' vision for online safety**. This statement will help guide the direction of Singapore's online safety policies – and public awareness efforts about them – to ensure that they reflect our youths' aspirations for social media and online spaces. The primary intended audience for this statement would be MDDI and other agencies in Singapore involved in developing online safety messaging for youths (for instance, NYC, MCCY, MOE, among others). Simultaneously, the statement would also be relevant for stakeholders such as social media platforms, non-profit organisations, educators and parents. The statement would help provide much-needed context – and a common orientation – towards how online safety policies and messaging could be developed for Singaporean youths.

39. To take such an effort forward, drawing inspiration from the eSafety Commissioner's work, we preliminarily propose that work to develop such a statement could be undertaken jointly by partners such as youth organisations, media literacy organisations, and universities with the research capabilities to carry out such research. We also observe that it is important to define Singaporean youths' needs and pre-dispositions – including at different stages of development as a youth – to contextualise youths' relationship with online spaces. This is particularly so given that Singaporean youths' experiences (and thus perspectives) are likely to differ in significant ways from youths raised in other jurisdictions and contexts.

40. Before closing off this Paper, the #TechHacks Panel notes that several other recommendations were considered to various degrees over the course of our deliberations. While these recommendations were ultimately not further developed by the #TechHacks Panel (for various reasons, including the need for more discussion, resources, time, expertise, among others), we are listing them down to provide some perspective on other recommendations that we had considered. These recommendations are listed in **Annex E** below.

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[36] eSafety Commissioner, Western Sydney University, "Consultations with young people to inform the eSafety Commission'er Engagement Strategy for Young People: A Report on the Findings", <"https://www.esafety.gov.au/sites/default/files/2022-01/YRRC%20Research%20Report%20eSafety%20 2021_web%20V06%20-%20publishing_1.pdf?v=1719123938819> (accessed 23 June 2024).

E. Conclusion

41. Shaping safer online spaces for the future is a multi-faceted and multi-stakeholder effort. With the support of NYC, the #TechHacks Panel will work towards **organising a multi-stakeholder roundtable on youths and safe online spaces on social media platforms** ("**Roundtable**") sometime in the foreseeable future. The Roundtable will bring together high-level representatives from key stakeholders in government, industry (including social media platforms) and key industry associations, academia and civil society groups. The aims of the Roundtable are to:

   a. Provide an opportunity for key stakeholder groups to present the state-of-the-art on their efforts to foster online safety and address online harms in Singapore;

   b. Have a moderated discussion on the #TechHacks Panel's recommendations above, and to seek input on what more each stakeholder can do in light of these recommendations;

   c. Discuss over-the-horizon issues in online safety (e.g. screen time and user-dependency on social media, the impact of overuse of smartphones on youths' physical and mental health,[37] developing social media etiquette, addressing cross-border challenges and how Singapore can contribute to global discourse[38]), and provide youth stakeholders an opportunity to share their experiences on these issues; and

   d. Share a draft youth aspirational statement for safe online spaces for the various stakeholders to comment upon.

42. This policy paper represents the work of the #TechHacks Panel over the last 12 months. We wish to take this opportunity to thank our partners and stakeholders that have partnered and journeyed with us. These include the National Youth Council, the Ministry of Culture, Community and Youth, the Ministry of Digital Development and Information, the Ministry of Education, Google Singapore, SG Her Empowerment, Open Government Products and the National Crime Prevention Centre.

43. We add that we are mindful that these recommendations on their own will not exhaustively solve all issues in the online safety space. This journey is therefore an ongoing one. We invite organisations and stakeholders to provide us feedback on the recommendations herein, as well as to let us know if you are interested to collaborate and be a part of the Roundtable. Our #TechHacks Panel will continue our work to translate these recommendations into reality as we build towards our vision of a kinder, safer and healthier digital world for Singaporean youths.

[37] Sandra Davie, "Teens and screens: How smartphones helped create a more anxious generation" (11 November 2024) <https://www.straitstimes.com/singapore/health/teens-and-screens-how-smartphones-have-created-an-anxious-generation?utm_campaign=ST_Newsletter_HeadStart> (accessed 30 November 2024).

[38] See for instance the Global Online Safety Regulators Network established by the eSafety Commissioner of Australia to coalesce independent regulators to cooperate via information-, expertise-, and best practice-sharing. See https://www.esafety.gov.au/about-us/who-we-are/international-engagement/the-global-online-safety-regulators-network.

#TechHacks Recommendations

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Annex A - Constitution of the #TechHacks Panel

Like the other three panels, the #TechHacks' panel comprises around 30 youths. The backgrounds of Panel members are varied, with various ages and backgrounds. Some are early-to-mid-stage professionals, while others are still at various stages of formal education (i.e., secondary, tertiary to university education). The full list of #TechHacks panel members can be found below.

Name	Role
Ken Chua Swee Meng	Advisor
Mohammad Matin Bin Mohdari	Advisor
Dev Bahl	Team Lead
Azlin Zubairah Binti Mohamad Johari	Panel Member
Ben Chua	Panel Member
Bryan Ong Cae Tze	Panel Member
Cameron Tan Shi Ern	Panel Member
Charmaine Tan Shiyan	Panel Member
Chin Char Min	Panel Member
Chong Chi Hoong	Panel Member
Dinah binte Aziz	Panel Member
Evelyn Alimin Li Zhirui	Panel Member
Josh Lee Kok Thong	Panel Member
Katherine Chang Kun Chua	Panel Member
Kelly Chiew	Panel Member
Lien Hui Xuan	Panel Member
Luo Chen Jun	Panel Member
Malcolm Ngio Yew Kiat	Panel Member

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Annex A - Constitution of the #TechHacks Panel

Name	Role
Matthew Ng De En	Panel Member
Mohamed Mikhail Kennerley	Panel Member
Nandhini Balakrishnan	Panel Member
Nandita Karthikeyan	Panel Member
Nurhan Hafiz Bin Mohammad Nazri	Panel Member
Rishab Sharma	Panel Member
Rustam Shariq Mujtaba	Panel Member
Saishwar Thirumagan Sri	Panel Member
Shalini Kumar	Panel Member
Tessa Foo Xuan Ru	Panel Member
Thaddeus Tan Loo Kai	Panel Member
Tiang Hui Hui	Panel Member

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Annex B - Internal Discussions and Stakeholder Outreach by the #TechHacks Panel

Since November 2023, the #TechHacks Panel has convened over 10 times. The meetings include formal convenings organised by the National Youth Council, as well internal small group discussions. The meetings are enumerated below:

No.	Organiser	Date	Brief description of meeting
1.	NYC	18 November 2023	Kick-Off and Policymaking Workshop
2.	NYC	25 November 2023	1st design innovation workshop • Introduction to research methodologies • Context-setting
3.	NYC	13 January 2024	2nd design innovation workshop • Preliminary discussion of problem statements relating to: digital well-being, digital safety and digital inclusion • Allocation of roles among different team members
4.	#TechHacks Panel	24 February 2024	• Secondary research findings
5.	NYC	1 March 2024	Stakeholder meeting (MCI)
6.	#TechHacks Panel	23 March 2024	• Shaping of survey questions • Fine-tuning problem statement
7.	#TechHacks Panel	28 March 2024	Discussion with Milieu on survey
8.	#TechHacks Panel	13 April 2024	Refinement on research methods problem statement
9.	NYC	20 April 2024	3rd design innovation workshop • Engagement with MOS Alvin Tan
10.	NYC	1 June 2024	Meeting with MOE representative
11.	#TechHacks Panel	8 June 2024	Finalising FDG questions
12.	NYC	30 June 2024	• Youth Forum Briefing • Presentation of preliminary findings and proposals of all 4 YP
13.	NYC	6 July 2024	• Rehearsal for Youth Policy Forum • Discussion on fine tuning recommendations
14.	MDDI / NYC	26 July 2024	Meeting with MDDI Senior Management (Deputy Secretary Gwenda Fong)
15.	NYC	25 August 2024	• Youth Policy Forum • Presentation of Youth Panel journey and proposed recommendations to stakeholders
16.	#TechHacks Panel	6 October 2024	• Post Youth Policy Forum reflections • Analyses of survey results • Discussion on next steps
17.	#TechHacks Panel	18 November 2024	Submission of Final Policy Paper

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Annex B - Internal Discussions and Stakeholder Outreach by the #TechHacks Panel

Particularly useful for the #TechHacks Panel has been meetings with external stakeholders. The external stakeholders that the Youth Panel has met include:

(a)   Ministry of Digital Development and Information;

(b)   Ministry of Education;

(c)   SG Her Empowerment;

(d)   Open Government Products; and

(e)   Google

(f)   National Crime Prevention Centre

The #TechHacks Panel is grateful to these external stakeholders for taking the time to meet panel members and to provide their perspectives on the issue of online safety and digital literacy.

Annexes

Annex C - How the #TechHacks Panel Conducted our Research

As mentioned in Section C above, we embarked on a mixed methodology study, involving primary and secondary research to better understand the online harms landscape in Singapore. The following provide more details on these methods and the findings relevant to our panel's objective.

Secondary research

Literature review

For our secondary research, the team conducted a comprehensive analysis of data on online harms, considering both local and global contexts. We reviewed a diverse array of sources, including academic journals, reports from non-profit and civil society organisations, and articles from mainstream and alternative news outlets for this. Given the broad scope of online harms, we focused our analyses on three key areas as follows: (1) types of online harms and their impact on youths in Singapore, (2) the life cycle of online harms, (3) youth response towards online harms, (4) youth perceptions of safe online spaces.

Type of online harms and their impact on youths

While there is no universal definition of what online harms are, they can broadly be defined as any action that is carried out online which causes a person distress or harm. These include a wide range of content relating to sexual and physical abuse, grooming, bullying or harassment, impersonation, unwanted sexual advances, misinformation, self-harm or suicide content, cyberstalking and pornographic content.[39][40] As the online space continues evolving, the list of harms will also increase.

In Singapore, online harms also encompass cyber activities relating to moneylending, drug abuse, mis-and-disinformation and information obstructing public safety and social harmony.[41][42] Among these, one of the most widely studied aspects of online harms is cyberbullying. Kowalski et al. (2014)[43] define cyberbullying as aggressive, intentional acts carried out by an individual or groups using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend themselves. Such online harms primarily occur because of the accessibility and anonymity of the internet which makes it difficult to identify perpetrators. (Smith et al., 2008)[44]

In the Singapore context, SG Her Empowerment ("**SHE**")'s 2023 survey administered to 500 Singaporeans aged 16 to 35 found that found that Image-Based Sexual Abuse ("**IBSA**"), cyberbullying and doxxing were indicated as the top three online harms

[39] Infocomm Media Development Authority, "IMDA's Online Safety Code Comes into Effect"<https://www.imda.gov.sg/resources/press-releases-factsheets-and-speeches/press-releases/2023/imdas-online-safety-code-comes-into-effect>(accessed 8 July 2024).

[40] World Economic Forum," How can we prevent online harm without a common language for it? These 6 definitions will help make the internet safer" <https://www.weforum.org/agenda/2023/09/definitions-online-harm-internet-safer/ > (accessed 8 July 2024).

[41] Ministry of Home Affairs, "Examples of Specified Criminal Offences in the Bill"<https://www.mha.gov.sg/docs/default-source/default-document-library/annex-a-examples-of-specified-criminal-offences-in-the-bill.pdf>(accessed 9 July 2024).

[42] Ministry of Home Affairs, "Introduction of the Online Harms Criminal Bill"<https://www.mha.gov.sg/mediaroom/press-releases/introduction-of-the-online-criminal-harms-bill/> (accessed 8 July 2024).

[43] Kowalski RM, Giumetti GW, Schroeder AN, Lattanner MR (2014) Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. Psychological bulletin 140(4):1073–13.

[44] Smith, P., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S. and Tippett, N., 2008. Cyberbullying: its nature and impact in secondary school pupils. Journal of Child Psychology and Psychiatry, 49(4), pp.376-385.

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Annex C - How the #TechHacks Panel Conducted our Research

experienced by Singaporean youths[45]. Other concerns also included fears over "cancel" culture, public shaming and scams. The study also found substantial gender and generational differences where female Gen Zs exhibited a higher concern for IBSA than male millennials. Similarly, in a survey conducted by the Ministry of Communications and Information (now known as Ministry of Digital Development and Information) involving over 2,000 youths in 2023, it was found that online cyberbullying was the most prevalent form of harm that youths encountered on social media, followed by exposure to sexual and violent content.

Research indicates that harms like cyberbullying and harassment can lead to severe psychological consequences, including depression, anxiety, and in extreme cases, suicidal ideation (Patchin & Hinduja, 2010).[46] Even in instances when the impact is not so extensive, cyberbullying can cause victims to exhibit antisocial behaviours like withdrawing from friends and family. Other literature also highlights how perpetrators of online harms have often been victims themselves as well. While any internet user can become affected by online harms, youths, owing to their developing cognitive, emotional and reasoning skills, are most at risk of this problem. This is in spite of their digital literacy and proficiency.[47]

Youths' responses towards online harms

Many youths have a basic understanding and awareness of the different social media safety features that they can rely on in the event of an online harm. However, they were not motivated to actively take any course of action, especially when the harm did not impact them directly. This digital bystander behaviour is not unique to Singapore. Various studies done overseas have highlighted how online users with higher levels of empathy, secure family relations, higher levels of perceived responsibility and self-esteem had greater levels of motivation to intervene when they witness cyberbullying or other forms of harassment directed at other online users. These studies also talked about such a bystander effect being a result of the normalisation of online harms which is another cause of concern for us.[48][49]

Across the different studies in Singapore, some youths talked about blocking and limiting perpetrators' access to their content and profile as a common strategy. They felt that it was important to take precautionary actions rather than depend on tech platforms and regulations. There were a handful who used platform tools to report their perpetrators. However, these studies commonly cited how youths faced several

[45] SG Her Empowerment, "Safeguarding Online Spaces (SOS) Study" <https://api2.she.org.sg/uploads/SHE_Safeguarding_Online_Spaces_(SOS)_Study_8Feb20242.pdf> (accessed 5 July 2024).

[46] Hinduja, S., & Patchin, J. W. (2010). Bullying, Cyberbullying, and Suicide. Archives of Suicide Research, 14, 206-221.

[47] Microsoft, "Millennials, teenagers the hardest hit by online risks in Singapore – new Microsoft study revealed" <https://news.microsoft.com/en-sg/2019/02/05/millennials-teenagers-the-hardest-hit-by-online-risks-in-singapore-new-microsoft-study-revealed/> (accessed 10 July 2024).

[48] The London School of Economics and Political Science."The 'onlooker effect': how bystanders influence our use of digital technologies"<https://blogs.lse.ac.uk/businessreview/2018/06/05/the-onlooker-effect-how-bystanders-influence-our-use-of-digital-technologies/> (accessed on 9 July 2024).

[49] Obermaier, M. (2022). Youth on standby? Explaining adolescent and young adult bystanders' intervention against online hate speech. New Media & Society, 0(0). https://doi.org/10.1177/14614448221125417

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issues with the reporting processes in place. For example, according to MCI's 2023 survey on online harms, it was found that only about 50% of Singaporeans chose to report explicit or harmful content that they came across on platforms. This low reporting was primarily due to (1) platforms not taking down harmful content even after reporting them; (2) platforms taking too long to respond; and (3) platforms not providing sufficient updates on the outcomes of reports.[50] These lead to a loss of trust within such mechanisms, pushing users to seek alternatives which mainly rely on self-censorship. While various tech platforms have a robust set of reporting mechanisms which are updated regularly to take into account the evolving nature of the online space, our research indicates that there are still many gaps, especially with the lack of follow up and timely response to reports made by youths.[51]

Youth perceptions of safe spaces

Many researchers engaged in qualitative interviews, panel discussions and consultation sessions to gather feedback from youths on their perceptions of safe online spaces. Although youths are generally regarded as having developing reasoning and critical thinking skills at their life stage, which makes them susceptible to online harms, existing studies show that many have clear expectations and aspirations on creating safe and inclusive spaces for their peers. According

to the Young and Resilient Research Centre's study in Australia in 2021, youths defined safe online spaces as being "inclusive" and "enabling". They advocated for a "youth-friendly" online space that can be developed in three ways. First, providing youths with more targeted messaging and education campaigns on online safety. Second, providing clearer guidelines on where to go for help and establishing non-judgmental spaces for victims. Third, getting youths directly involved in decision-making regarding regulations and policy making pertaining to the online space. Other studies focusing on youths in Southeast Asia also highlighted youths equating safety with the protection of their rights and privacy. The youths also associated online safety with positive emotions such as feeling motivated, content, peaceful, optimistic and assured when connecting with people online.

Youths generally understand that myriad stakeholders ranging from tech platforms, the government, community organisations, and mostly important youths like themselves have an important role in keeping the online space safe and inclusive for all.

Primary research

Survey

The #TechHacks Panel worked with Milieu Insights Pte Ltd to design an online survey that was administered to 1,000 youths

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[50] Western Sydney University, "Consultations with young people to inform the eSafety Commissioner's Engagement Strategy for Young People"<www.esafety.gov.au/sites/default/files/2022-01/YRRC%20Research%20Report%20eSafety%202021_web%20V06%20-%20publishing_1.pdf?v=1720929138117> (accessed 11 July 2024).

[51] Western Sydney University, "Online safety perceptions, needs, and expectations of young people in Southeast Asia Consultations with young people in Indonesia, Malaysia, Thailand, and Vietnam"<www.westernsydney.edu.au/young-and-resilient/documents/Online_Safety_Perceptions_SEA_2022.pdf> (accessed on 11 July 2024).

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between 16 and 34 years old. The profiles of the respondents were nationally representative in terms of gender, age and race. The survey which was conducted from 9 to 19 May 2024 aimed to understand: (1) Singaporean youths' attitudes and perceptions towards online harms; (2) adequacy of existing platform redressal mechanisms to safeguard them; (3) youths' expectations of the types of support needed for victims for online harms; and (4) perceptions of what constitutes a "safe" online space for youths. The survey uncovered the following key findings.

1. Youths today experience an array of online harms. Among these, cyberbullying and harassment and scams were the most prevalent forms of harms that they had regularly encountered.

2. In the event of an online harm such as harassment, more than 2 in 3 youths preferred to adopt a non-confrontational approach such as blocking a perpetrator's access to their profiles, rather than actively seeking help or reporting their perpetrators. While such stopgap measures are useful in preventing victims from experiencing any immediate harms, the lack of willingness to actively seek help raises some concerns on the long-term impacts of such harms, especially when they occur frequently. Moreover, the unwillingness to report perpetrators increases the risk for other users who may encounter them.

3. While more than 2 in 3 youths are aware of platform redressal mechanisms (e.g, reporting tools), many are unwilling to use them because of a lack of confidence in their effectiveness to bring about any resolution. Many gave examples of instances where they received no updates from platforms after flagging harmful online content. This trust deficit underscores the urgent need to enhance existing redressal mechanisms to provide youths with a greater sense of assurance and confidence in platform redressal mechanisms.

4. 7 in 10 youths believe that if existing redressal mechanisms are improved, especially in terms of providing more timely updates, they would be more motivated to actively use the available platform tools.

5. About 3 in 5 youths felt that it is important for victims of online harms to have strong support networks, such as friends and family, to help them resume their online activities. This underscores the need to build awareness and relevant skills among these support groups so they can effectively respond to youths affected by online harms.

6. Youths envisioned safe online spaces as having respectful, inclusive and non-judgmental behaviours. They felt that active listening and understanding are crucial to build a safer online space in Singapore.

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Focus Group Discussions ("FGDs")

We also conducted FGDs involving about 90 youth leaders aged between 16 and 24 years old from various institutes of higher learning. The FGDs, which were conducted on 24 June 2024, aimed to further understand: (1) Singaporean youths' reasons and rationale behind their responses to online redressal mechanisms; and (2) their expectations of the government and tech platforms to create safer online spaces. Once the FGDs ended, we conducted a thematic analyses of the responses collected. The FGDs uncovered the the following key findings:

1. Majority of youths preferred to take self-responsibility when protecting themselves against online harms. This includes incorporating digital hygiene practices, such as keeping their profiles private and limiting interactions with strangers. At the same time, some felt that youths who experience online harms are partially to be blamed for their predicament because of their perceived lack of responsibility in safeguarding themselves. This indicates the prevalence of victim-blaming.

2. Like the survey participants, the FGD participants also discussed using non-confrontational or "disengagement" strategies, such as blocking and ignoring perpetrators of online harms. While some shared that they would take action against their perpetrator, the nature of the action would depend on the severity of the harm caused.

3. Platform redressal tools, such as reporting, were considered highly ineffective by many youths. They felt discouraged to use these tools because of the lack of response by platforms when a report is made. Even in the event that platforms respond to their reports, many shared that the response time is too late to mitigate the impact of the harm caused (e.g.,non-consensual sharing of intimate images). Others also expressed frustration over the lack of justification or follow-up by platforms to explain the outcomes of their reports, such as allowing flagged content to remain on the platform.

4. Youths felt that while existing platform measures are important, tech platforms can expand on these measures further. Suggestions include relying less on AI-driven content moderation and more on human-driven moderation, implementing more streamlined reporting mechanisms that act on reports within a shorter time span, and establishing more robust verification processes.

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Annex D - Public Feedback from Youth Policy Forum Survey

The #TechHacks Panel presented its proposed recommendations to Prime Minister Lawrence Wong, Minister for Culture, Community and Youth Edwin Tong SC, and members of the public during the inaugural Youth Policy Forum ("YPF") on 25 August 2024. During the YPF, the #TechHacks Panel also provided attendees with an avenue to provide feedback on our recommendations online, with the aim of gaining broader insights and gauge public sentiment on our proposed solutions.

Breakdown of respondents

From the YPF, we received feedback from 202 respondents in total. While the respondents comprised secondary- to tertiary-level students, working adults, and seniors, approximately 70% were aged between 15 and 25.

As a preamble, we asked respondents about their confidence to recognise and respond effectively to online harms. About 30% felt neutral or lacked confidence in being able to do so. This highlights the need for further digital literacy and resilience-building initiatives to better equip young people to navigate online threats.

Feedback on the TechHack's Panel's recommendations

Among our proposed recommendations, two stood out for their support from respondents. 162 respondents (around 80%) expressed strong support for **increasing efforts to recognise youths as compulsory stakeholders in shaping the digital space**, including giving them a "seat at the table"

when digital policies impacting youths were being shaped and discussed. Qualitative feedback from the respondents also revealed a sentiment that youths' voices were not being adequately considered on issues like online safety. Further, some respondents emphasised the need for government-led engagement efforts to be more inclusive. Respondents suggested engaging youths from more diverse socioeconomic backgrounds, and ensuring that experiences on a variety of social media platforms — not just the most popular ones — are considered. Additionally, participants highlighted that youth engagement should be an active and ongoing effort given the evolving nature of online harms and social media.

In addition, 156 respondents (around 77%) expressed support for policies and measures that helped **enhance platform accountability towards social media user**s (e.g. by strengthening responsiveness to users who use online redressal mechanisms). While respondents noted efforts by the government to engage with tech companies and review policies and regulations, they felt that more can be done. Respondents were particularly concerned about emerging threats, such as AI-generated harms, which could require even more proactive and adaptive measures.

Concurrently, respondents' responses showed a growing awareness and concern around privacy. With youths sharing significant amounts of personal information whilst interacting online, respondents indicated that social media platforms should offer more customisable and user-friendly privacy

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Annex D - Public Feedback from Youth Policy Forum Survey

settings. These features would empower users to tailor their own experiences while maintaining control over their personal data and online presence.

Respondents also showed broad agreement towards developing a lifecycle-based model to support youth and their support networks in understanding threat vectors and intervention points, and determine their next course of action when faced with online harms. Respondents noted how victims of online harms are often overwhelmed and confused by the plethora of information online on how to react when faced with an online harm.[52]

On the #TechHacks Panel's final recommendation on developing an annual survey on online harm, some respondents welcomed the idea of focusing exclusively on youths to get a better understanding of their problems. These respondents felt that having such granular insights could provide tech platforms and other stakeholders more urgency in tackling the challenges youths face. Respondents also noted that these surveys should be done consistently to track the progress made in creating a safer digital environment for youths.

Beyond these recommendations, respondents also offered valuable suggestions, such as increasing efforts to educate youths and online users in general on proper online etiquette. This is particularly important in addressing harms like cyberbullying and doxxing, which appear to be commonly experienced by youths. Acknowledging the vast and ever-evolving nature of social media, many felt that there will always be risks present. Therefore, it is essential for youths to develop resilience and skills — both soft and hard — to manage these challenges and also offer support to their peers facing similar issues.

Further, some respondents noted that while developing more policies and safety tools is important, building stronger human connections amongst online users is equally crucial. For example, involving trusted networks, online youth influencers, or individuals to whom youths look up to, was important in spreading online safety messaging and fostering a more supportive and empathetic online environment. These recommendations will also be taken into consideration by the #TechHacks Panel as we work on the next phase of our initiatives.

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[52] Some respondents suggested that the government could work with tech companies to design more robust and responsive reporting mechanisms, coupled with accessible mental health support for youths of different backgrounds.

#TechHacks Recommendations

Annexes

Annex E - Other Considerations Considered by the #TechHacks Panel

Over the course of the #TechHacks Panel's work, we considered several other proposals and recommendations. These proposals emerged from various sources, including from #TechHacks Panel members, our primary research and discussions with other stakeholders.

As mentioned in the main body of this Paper, these recommendations were ultimately not further developed by the #TechHacks Panel for various reasons, including the need for more discussion, resources, time, expertise, among others. Nevertheless, we are listing them down to provide some perspective on other recommendations that we had considered.

The proposals are as follows:

1. Developing an online report on youth sentiments that would provide further insights on sentiments we had gathered from youths on the online safety space in Singapore. It was envisioned that the report would also include both the #TechHacks Panel's recommendations and set out other efforts in the online safety space in Singapore to avoid the duplication of efforts.

2. A national-level youth council or committee that would annually submit recommendations and feedback on the online harms environment.

3. Enhancing public education on parasocial relationships. Para-social relationships are "one-sided relationships" in which an individual extends emotional energy, interest and time on another individual (or group of individuals), whilst the other party or persona is entirely unaware of the other's existence. Para-social relationships already exist pre-social media with celebrities and public figures, but have been further proliferated with the rise of social media influencers. The aim was to improve public awareness on such relationships, so that youths could be better aware of when they (or their friends) are in a para-social relationship, and how to manage these relationships in a healthy way.

4. Establishing a "youth mode" on social media. Such a youth mode would be aimed at providing a safer and healthier social media environment for youth users through, for instance, enhanced guardrails, time usage restrictions, content restrictions or enhanced content moderation. We did not pursue this further as we noted that a "child-friendly mode" already exists for some social media platforms (e.g. YouTube Kids). We also considered that pushing for such a youth mode could require further time, resources and expertise that the Panel may not have the ability to pursue within our term of work.

#GREENHACKS

Resighting Recycling

Recommendations Report on Refining Recycling Policies in Singapore for the Ministry of Sustainability & the Environment National Environment Agency

Recommendations by #GreenHacks, a youth panel under the National Youth Council

#GreenHacks Recommendations

This report is prepared by #GreenHacks Youth Panel 2023/2024

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#GreenHacks Recommendations

This report is prepared by #GreenHacks Youth Panel 2023/2024

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Disclaimer & Confidentiality

This report was prepared under the guidance of the National Youth Council's Youth Policy Panel initiative for the relevant agencies working on recycling issues including the MSE and NEA. It is intended for limited circulation only.

Opinions expressed in this report are those of the authors and do not necessarily represent or reflect the position of the organisations these authors are affiliated with.

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#GreenHacks Recommendations

Executive Summary

The #GreenHacks Youth Policy Panel was established in late 2023 to partner with MSE to co-create environmental policies addressing key issues concerning the youth. Despite the government's efforts to promote recycling, Singapore continues to struggle with high contamination rates (40%) and low household recycling rates, with plastic, glass, and paper recycling rates at 6%, 14%, and 37% respectively in 2023. This trend threatens Singapore's environmental sustainability targets and underscores the need for bold, innovative policy interventions.

The Panel conducted a series of surveys, focus group discussions, and interviews to understand the issue comprehensively. The findings revealed that knowledge gaps, inconvenient recycling processes, sub-optimal infrastructure, insufficient economic motivation, and a lack of social norms are the primary factors contributing to low recycling rates. To address these challenges, the Panel formulated a two-pronged strategy focusing on (1) effective information dissemination through a mandatory labelling scheme for recyclables to standardise and simplify recycling labels, and (2) improvements in recycling infrastructure to transition towards segregated recycling bins by 2035. These measures, supported by public education and outreach, aim to foster a deeper understanding of recycling practices, encourage community engagement, and ultimately increase participation and efficiency in recycling efforts.

Furthermore, the paper highlights the importance of learning from international case studies, such as those from Japan and South Korea, which have successfully implemented effective recycling policies. These examples demonstrate the significance of clear labeling and citizen involvement in driving proper recycling practices. By adopting similar approaches, Singapore can enhance its recycling infrastructure and public awareness, ultimately contributing to a more sustainable and environmentally conscious society.

The next steps involve MSE or NEA initiating pilot programs involving recyclables segregation and labelling to test the effectiveness of the proposed recommendations in selected communities, fostering collaboration between government agencies, industry stakeholders, and the public to ensure a collective effort towards a more sustainable future. Additionally, it will be helpful for MSE and NEA to set up a robust monitoring and evaluation framework to track the progress of the implemented policies and make necessary adjustments. Scaling up successful pilot programs to a national level and continuously reviewing and refining recycling policies based on feedback and evolving best practices will ensure long-term sustainability.

#GreenHacks Recommendations

1. Introduction

The #GreenHacks Youth Policy Panel was established in late 2023 to partner with MSE to co-create environmental policies to address key issues that concern the youth.

Following 2 months of scoping, the Panel identified a critical issue to address: Despite the government's effort to promote recycling in recent years, Singapore continues to struggle with a high contamination rate of 40% and stubbornly low household recycling rates. In 2023 the recycling rates for plastic, glass and paper were 6%, 14%, and 37% respectively.

This trend threatens Singapore's environmental sustainability targets and underscores the need for bold, innovative policy interventions that address the root causes of this challenge. Through this policymaking exercise, the Panel seeks to identify ways to increase public willingness to recycle right and effectively, thus minimising contamination and maximising household recycling rates.

Notably, consumers play a central role in tackling recycling. With their active involvement, recycling rates can be significantly improved. While current recycling initiatives, such as the promotion of Bloobins and public education campaigns, aim to raise awareness, domestic recycling rates in 2022 and 2023 reached record lows. The broader trend is equally concerning: overall recycling rates have dropped by 10% in the past decade.

This indicates that current policy interventions have not had the intended effect. With the target of achieving 30% domestic recycling rate by 2030, as outlined in Zero Waste Masterplan Singapore, novel and decisive action must now be taken to resolve the issue, starting with domestic recycling.

In formulating its response, the Panel conducted a series of surveys, focus group discussions, and interviews to better understand the issue. Cognisant of the necessity of driving stakeholder action, the #GreenHacks Panel has thus formulated a two-pronged strategy leveraging on (1) mandatory recycling labels and (2) enhanced recycling infrastructure, buttressed by refreshed public education efforts, to refine the choice architecture around recycling and thereby drive positive stakeholder attitudes and behaviours.

#GreenHacks Recommendations

2. Our Youth Panel Journey

#GreenHacks Timeline

Over the course of 14 months, the youth panel went through a series of seminar workshops, problem scoping sessions, brainstorming of ideas, engagement with various stakeholders, as well as field trips to gain a real-world understanding of the challenges and factors of the recycling issue. The following illustrates the detailed timeline of events from November 2023 to December 2024.

Youth Panel Kickoff & Policy-Making Workshop

Design Innovation Workshop 2

1st Meeting with MSE Policy Officer

25 Nov 2023

17 Feb 2024

23 Mar 2024

18 Nov 2023

13 Jan 2024

7 Mar 2024

Design Innovation Workshop 1

Panel Monthly Meeting

Panel Monthly Meeting

Design Innovation Workshop 3 & Engagement with MOS Alvin Tan

Learning Journey to Sembwaste MRF & Panel Monthly Meeting 1

3rd Meeting with MSE Policy Officer

2 May 2024

29 June 2024

18 July 2024

20 Apr 2024

8 June 2024

10 July 2024

2nd Meeting with MSE Policy Officer

Panel Monthly Meeting 2

Meeting with Government Chief Sustainability Officer

#GreenHacks Recommendations

2. Our Youth Panel Journey

#GreenHacks Timeline

Focus Group
discussions
with CYDP
Participants

**27 July
2024**

Panel Monthly
Meeting

**24 Aug
2024**

Panel Monthly
Meeting

**1 Oct
2024**

**25 July
2024**

**3 Aug
2024**

**29 Sep
2024**

**Meeting with
800 Siper**

**Youth Policy
Forum**

**Coffee Chats
with NYC**

Meeting with
Singapore
Environment Council

Meeting with NTUC Chief
Sustainability Officer

Parliament
House Tour &
Engagement with
MOS Alvin Tan

**28 Oct
2024**

**9 Nov
2024**

**End Dec
2024**

**11 Oct
2024**

**29 Oct
2024**

**23 Nov
2024**

**Meeting with National
Environment Agency**

**Panel Monthly
Meeting**

**Completion of
#Greenhacks Policy
Paper**

#GreenHacks Recommendations

2. Our Youth Panel Journey

Motivations to sign up for the Youth Panels

Our motivation to join the Youth Panel stems from a shared passion for environmental sustainability and a desire to contribute meaningfully to policy-making in Singapore. We aim to learn about the policy process, collaborate with like-minded individuals, and work alongside government agencies to drive impactful change. For many of us, this is a platform to ensure that diverse voices, including those from minority groups, are heard and valued. Through #GreenHacks, we aspire to become stronger advocates for sustainability, gain insights into how youth can influence policies, and inspire the next generation to continue building a sustainable future.

Most rewarding & successful aspects of the Youth Panel

Our experience on the Youth Panel has been incredibly rewarding. We have had the chance to engage deeply with sustainability issues, collaborate with like-minded peers, and work with key stakeholders like the NEA, SEC, and MSE policymakers. Further interaction with waste collectors, industry experts, and other stakeholders from the public and private sectors gave us valuable insights into the complexities of policy-making, including trade-offs and negotiations. Field trips to a waste management facility and the Youth Policy Forum were key highlights, allowing us to share our recommendations, receive feedback, and see our efforts recognised by officials and the media. This journey has inspired us, strengthened our advocacy, and fostered personal growth, confidence, and a deeper appreciation for the role of youth in shaping policies.

Some challenges throughout the Youth Panel journey

Our journey on the Youth Panel came with its challenges, particularly in developing impactful, evidence-based policy recommendations. Coordinating across a large, diverse volunteer team with varied schedules, commitments, and even relocations was a constant hurdle. Securing stakeholder responses was difficult, especially during early outreach efforts, and aligning with MSE's policy direction sometimes constrained our creativity. We also faced the complexity of sustainability issues, navigating interconnected factors that made formulating practical, well-supported recommendations a significant challenge. Limited resources and communication delays occasionally led to last-minute tasks and added pressure. Adapting to new insights and feedback required resilience, but through mutual support and commitment, we overcame these obstacles and continued to make progress together.

Key lessons in collaboration, engagement and recommendation formulation

Our Youth Panel journey taught us that policymaking is a complex and iterative process that requires communication, compromise, and patience. Collaborating with stakeholders highlighted the need for data-backed proposals, open dialogue, and balancing diverse perspectives to create well-rounded solutions. Engaging with both youth and non-youth stakeholders underscored the importance of understanding differing goals, simplifying technical concepts, and fostering mutual respect for impactful outcomes. Formulating recommendations revealed that addressing gaps requires trade-offs, adaptability, and collaboration, with no one-size-fits-all solutions. Through perseverance

2. Our Youth Panel Journey

and teamwork, we learned that meaningful policy change takes time but is ultimately rewarding.

Thoughts on youth in Singapore and their role in contributing to policy making

We believe involving youth in policy making fosters a sense of belonging and empowers us to share fresh, innovative ideas while shaping the future of Singapore. With guidance from experienced individuals, we can navigate the complexities of policy formulation and contribute meaningfully to inclusive, forward-thinking solutions. Youth engagement sparks critical thinking, healthy debates, and mutual understanding, ensuring policies reflect diverse perspectives and address the needs of future generations. While Youth Panels are a vital step, more efforts are needed to engage a broader range of young people and equip them with the tools to understand and influence policymaking effectively.

Summary

Overall, we are satisfied with our Youth Panel journey but acknowledge some reservations about the extent to which our work will translate into concrete recommendations adopted by the government. As this is the Panel's first iteration, there are natural doubts about its impact on youth engagement and policymaking in Singapore, and we recognise that there is room for improvement to strengthen its contributions. Despite these challenges, most of us remain eager to continue contributing and participating in future iterations of the Youth Panels.

#GreenHacks Recommendations

3. Background & Challenge

Key objectives and problem statement

In the past decade, Bloobins, Bloobox and reverse vending machines have been part of government-led waste management initiatives to encourage recycling at the household level, with the broader goal of increasing Singapore's domestic recycling rate to 30% by 2030.

Nonetheless, there remains a significant lack of public awareness about the importance of recycling, evident from the 40% contamination rate and low recycling rates of plastic (6%), glass (14%), paper (37%) according to NEA's 2023 statistics on waste and recycling.[1] It was also reported that the overall domestic recycling rate has stalled at 12%, the lowest in a decade.[2]

With low recycling rates and increasing volumes of waste generated,[3] Singapore will see more waste diverted to incineration plants, exacerbating the burden on Singapore's only landfill as it is currently more than half full.[4] At the current run rate, the landfill will reach full capacity by 2035.[5] Bearing in mind Singapore's efforts to promote recycling effectively, and the persistently low recycling rates and high contamination rate, this paper seeks to table policies to address the issue of recycling amongst households within housing estates.

Public's attitudes and awareness

Research conducted by Milieu Insight on behalf of #GreenHacks revealed that 40% of Singaporeans face difficulty in locating recycling bins, and 72% of Singaporeans lack knowledge of the correct method of sorting recyclable waste, contributing to Singapore's high domestic recycling contamination rate. Most participants cited the time-consuming nature and lack of space in one's house as barriers to everyday recycling. Likewise, focus group discussion participants emphasised the need for greater 'convenience' in recycling. Individuals' limited visibility of the management of recycled materials by waste management companies and an unclear understanding of recycling bin labels further challenge effective behavioural change.

Statista reported in 2019 that Singapore is one of the world's greatest consumers of single-use plastics, with a per capita use of 76kg - also the biggest volume in the Asia-Pacific region.[6] Even with the rise of movements that discourage the use of single-use plastics, such as the BYO (Bring-Your-Own) campaign by Zero Waste SG in 2017[7], phasing out of plastic straws by over 270 food and beverage outlets in 2019[8], NEA's Say YES to Waste Less annual campaign launched in 2019, and the more recent disposable plastic bag charge

[1] Waste Statistics and Overall Recycling. (2023). National Environment Agency. Retrieved Dec 7, 2024, from https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling

[2] Ganesan, N. (2024, June 21). Singapore's recycling rate falls to 52% in 2023, decline from 10 years ago. Channel NewsAsia. https://www.channelnewsasia.com/singapore/recycling-rate-domestic-waste-statistics-2023-nea-4418776

[3] Yeap, A. (2024, April 29). Reducing single-use plastics and disposables — are we there yet? Or are companies just greenwashing?. Channel NewsAsia. https://www.channelnewsasia.com/today/big-read/big-read-reduce-single-use-plastics-disposables-companies-greenwashing-4297071

[4] Choo, C., Abu Baker J. (2023, November 09). Environmental experts sound the alarm on how fast Singapore's only landfill Semakau is filling up. Channel NewsAsia. https://www.channelnewsasia.com/today/big-read/big-read-reduce-single-use-plastics-disposables-companies-greenwashing-4297071d

[5] Ibid

[6] Yeap, A. (2024, April 29). Reducing single-use plastics and disposables — are we there yet? Or are companies just greenwashing?. Today. https://www.channelnewsasia.com/today/big-read/big-read-reduce-single-use-plastics-disposables-companies-greenwashing-4297071

[7] The BYO movement saw over 430 retail outlets offering incentives to customers who bring their own reusable bags, bottles or containers.

[8] This was part of a larger drive by the World Wide Fund for Nature.

#GreenHacks Recommendations

3. Background & Challenge

in major supermarkets starting in July 2023, plastic waste generation continues to increase each year (Figure 1). And yet, plastic is just one of the many materials that are over-consumed and poorly recycled. This underscores the persistence and pertinence of the problem of high waste generation and poor recycling habits.

SG's Sustainability Journey: Policy Changes

Guided by the larger SG Green Plan and informed by the work of advocacy groups, #GreenHacks aims to play a supporting role in driving recycling in Singapore.

Under the Zero Waste Masterplan led by the MSE, Singapore aims to increase its overall recycling rate to 70% by 2030.[9] In addition, the 2024 Resource Sustainability (Amendment) Bill introduced three new measures to address packaging waste and food waste: a) A disposable carrier bag charge at supermarkets; b) A beverage container return scheme; and c) A food waste reporting framework for industrial and commercial premises.[10] A 10-cent beverage container return deposit is also slated to be rolled out in April 2026.[11]

In September 2024, NEA rolled out a new Telegram AI chatbot, the Bloobin AI chatbot, for users to ask questions on recycling and check if certain items can be recycled in bloobins.[12] This strives to encourage users

Plastic Waste Generated in Singapore

2022
1,001,000 tonnes
177kg/capita

2021
982,000 tonnes
180kg/capita

2020
868,000 tonnes
152kg/capita

2019
930,000 tonnes
163kg/capita

2018
949,000 tonnes
177kg/capita

2017
815,000 tonnes
145kg/capita

Source: National Environment Agency

Figure 1: Growing plastic waste in Singapore from 2017 to 2022

to recycle properly through accessible information platforms.

International case studies

Effective waste management and recycling practices are becoming key areas of focus not just in Singapore, but many countries around the world. They are crucial to address growing environmental and public health challenges posed by waste accumulation. Around the world, various countries have implemented innovative and impactful recycling policies. In our research literature, we categorised them into 2 main domains: segregation and labelling.

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[9] Zero Waste Masterplan Singapore. (2020, January 1). Zero Waste Masterplan Singapore. Ministry of the Environment and Water Resources.

[10] Ministry of Sustainability and the Environment. (2023, March 21). Opening Speech by Dr Amy Khor, Senior Minister of State for Sustainability and the Environment, for the Second Reading of the Resource Sustainability (Amendment) Bill. https://www.mse.gov.sg/resource-room/category/2023-03-21-opening-speech-for-the-second-reading-of-the-rsa/

[11] Tan, N. (2024, July 31). 10-cent beverage container return deposit to be rolled out in April 2026 after a year's delay. The Straits Times. https://www.straitstimes.com/singapore/after-a-year-s-delay-10-cent-beverage-deposit-to-be-rolled-out-on-april-2026?utm_medium=social&utm_source=instagram&utm_campaign=stigs&fbclid=PAZXh0bgNhZW0CMTEAAaao0iJz-O_hK32IFLZM-CyoajYIOG7suo6RUExOCc9cBP-WZyyFWsKigaM_aem_F7QLo4OhL-b2kQ3eDhKujw

[12] Yu, A. (2024, Sep 17). Unsure if you can recycle a frying pan? Ask NEA's new AI chatbot. The Straits Times. https://www.straitstimes.com/singapore/unsure-if-you-can-recycle-a-frying-pan-ask-nea-s-new-ai-chatbot

#GreenHacks Recommendations

3. Background & Challenge

Singapore does perform waste segregation, but primarily in the backend by staff at recycling facilities. However, contamination rates in such waste has still been high, ranging from 40%[13] to 70%[14]. There have been multiple attempts to address this issue through initiatives such as transparent bins[15] but their success is limited. We examined case studies from several countries, eventually, identifying Japan and South Korea as good Asian models to learn from. Japan and South Korea have high population density and the rapidly aging demographic of their cities, which make them similar to Singapore's operating landscape.

Japan's waste policies prove effective in reducing landfill waste by 91.5% between 1990 and 2013. A driver of success is the policy for product labeling under the Containers and Packaging Recycling Act.[16] By indicating clearly which materials can be recycled, consumers are guided to separate recyclables more effectively. In a similar vein, South Korea's Jongnyangje system requires residents to separate waste such as food, trash, recyclables and bulky items into designated coloured bags.[17] This system is supported by heavy fines of up to one million won (equivalent to SGD944), imposed on citizens who do not comply with waste disposal rules. Its recycling and composting rate is at 60%, one of the highest in the world, according to the World Bank. Likewise, its food waste recycling rate has risen from 2.6% in 1996 to 98% today.[18]

Drawing parallels to Singapore, where current policies are largely geared towards the seeming convenience of citizens resulting in the lack of participation when it comes to separating recyclables, these international case studies raise two key points; firstly, the importance of segregation, and secondly, the need for citizen involvement to drive proper recycling, and the concomitant reduction of waste.

Conclusion

By synthesising the information highlighted in the sections above, the panel determined that the following problem statement would best guide its mandate of helping MSE achieve its policy goals.

#GreenHacks aims to address the issue of recycling amongst households within housing estates because despite Singapore's efforts to promote recycling, there remains a significant lack of public awareness about the importance of recycling, resulting in a 40% contamination rate.

To this end, this paper aims to target (1) effective information dissemination through a scheme mandating standardised and simplified labelling for recyclables and (2) effecting improvements in infrastructure via a roadmap of transitioning to segregated recycling bins by 2035. These recommendations will be supported by public education and outreach which will foster a deeper understanding of recycling practices, encourage community engagement, and ultimately lead to increased participation and efficiency in recycling efforts.

[13] Waste Statistics and Overall Recycling. (2023). National Environment Agency. Retrieved Dec 7, 2024, from https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling

[14] Chia, L., & Tan, C. (2023, August 26). Is recycling plastic pointless? Hard truths about what happens to your recyclable waste. Channel News Asia. https://www.channelnewsasia.com/cna-insider/plastic-recycling-rate-singapore-exports-bottled-water-safe-3723811

[15] Zero Waste Singapore. (2023). Report on MSE Transparent Recycling Bin Pilots. Ministry of Sustainability and the Environment. https://www.mse.gov.sg/resources/zero-waste-sg-report-transparent-bin-pilot.pdf

[16] Hosoda, E. (2016). Waste policies and related legislation in Japan. In Yamamoto, M. and Hosoda, E. (Eds.), The Economics of Waste Management in East Asia (pp. 1–36). Routledge.

[17] Belcher, D. (2022, May 21). In South Korea, an Emphasis on Recycling Yields Results. New York Times. https://www.nytimes.com/2022/05/21/business/south-korea-recycling.html

[18] Subra, A. (2024, August 28). South Korea's Food Waste Recycling Model Transforms leftovers into Energy. Planet Ark https://planetark.org/newsroom/news/south-koreas-food-waste-recycling-model-transforms-leftovers-into-energy

#GreenHacks Recommendations

4. Approach & Methodology

To develop robust and actionable policy recommendations, #GreenHacks integrated both primary and secondary research, combining ground-level insights with global best practices.

4.1. Literature Review

In addition to waste segregation, the panel researched citizen involvement to help drive proper recycling and identified labelling to be a useful tool. Singapore's current labelling policies (i.e. Singapore Green Labelling Scheme, Nutri-Grade label, Energy Labelling Scheme, Water Efficiency Labelling), for example, have high public visibility and accessibility, and thus were inspired to propose labelling policies as another recommendation.

The panel also reviewed literature about labelling policies and schemes in different countries such as the United Kingdom's On-Pack labelling scheme known as 'Recycle Now', the United States' How2Recycle (H2R) programme and Italy's labelling policies.

In the UK, the 'Recycle Now' label primarily comprises 'Recyle' or 'Don't Recycle' instructions (see image on the right) for easy understanding for the consumers. The labels had been proposed as a mandatory scheme to be part of the draft packaging Extended Producer Responsibility (EPR) regulations initially slated to come into effect in 2025, but the scheme has since been delayed by the UK government.[19]

Labels used in the US H2R programme, however, break down packaging by component and provide specific recycling instructions (see examples on the right). Unfortunately, measuring the effectiveness of the label is difficult due to fragmented data on what actually gets recycled. The privatised recycling system in the U.S. has gaps that make it hard to track material flows. The article[20] concludes that improving recycling rates requires a holistic, data-driven approach to address the entire recycling system, not just consumer-facing labeling.

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[19] "Disappointment at EPR mandatory packaging labelling delay". CircularOnline (2024, September 30). https://www.circularonline.co.uk/news/disappointment-at-epr-mandatory-packaging-labelling-delay/
[20] Smieja, J. (2023, October 6). The How2Recycle label does so much right. Why are recycling rates so low? GreenBiz. https://www.greenbiz.com/article/how2recycle-label-does-so-much-right-why-

#GreenHacks Recommendations

4. Approach & Methodology

Similarly, Italy's labelling policies[21] also depended on the clarity of the labels created as well as providing public education to help with the understanding of the labels[22]. In the long term, labelling policies can improve overall socioeconomic savings and environmental benefits through increased recycling[23] and lower waste management costs[24]. We also reviewed literature on the effectiveness of education and community outreach in inculcating positive environmental behaviours, and found that the success of communication strategies are largely dependent on the sociocultural norms of the country.[25]

4.2 Primary Research

Beyond the literature review, #GreenHacks conducted studies through online surveys, focus group discussions and stakeholder engagements. In doing these studies, #GreenHacks acknowledges the survey done by NEA in 2023 on household recycling and would like to complement their efforts by providing a different set of lenses.

Milieu Survey

The research objective was to understand the level of involvement among Singaporeans with recycling, as well as their motivators and challenges in being more mindful about reducing, reusing, and recycling. The online survey garnered 1,000 responses from citizens aged 16 and above between 07 to 15 May 2024.

Youth Policy Forum Survey

The digital feedback exercise was rolled out after the Youth Policy Forum to gather feedback on the Panel's preliminary recommendations. We received 282 responses from mostly youths (240 respondents aged 36 and below) between 24 August and 29 September 2024.

Asia Insights Focus Group Discussions

Two in-person Focus Group Discussions were held on 06 July 2024, each lasting 2 hours. 19 participants were of diverse backgrounds, ages and dwelling types.

The objective was to:
- Understand the knowledge, practices, obstacles and challenges participants face in recycling
- Explore what motivates or discourages participants from recycling, including the role of incentives and awareness campaigns
- Garner participants' suggestions for enhancing recycling systems and increasing recycling rates

CYDP Focus Group Discussion

The one hour in-person Focus Group Discussion was held on 25 July 2024 to explore motivations and barriers for recycling and evaluate the Panel's preliminary recommendations.

[21] Kavei, F. A., & Savoldi, L. (2021). Recycling behaviour of Italian citizens in connection with the clarity of on-pack labels. A bottom-up survey. Sustainability, 13(19). https://doi.org/10.3390/su131910846

[22] Albizzati, P. F., Cristobal, G. J., Antonopoulos, I., Egle, L., Foster, G., Gaudillat, P., Marschinski, R., Pierri, E., & Tonini, D. (2023, February 7). Harmonised labelling of waste receptacles with matching product labels. JRC Publications Repository. https://publications.jrc.ec.europa.eu/repository/handle/JRC132348

[23] One planet. (2021, August 20). On-Pack Recycling Label (OPRL) Guidance.

[24] Albizzati, P. F., Cristobal, G. J., Antonopoulos, I., Egle, L., Foster, G., Gaudillat, P., Marschinski, R., Pierri, E., & Tonini, D. (2023, February 7). Harmonised labelling of waste receptacles with matching product labels. JRC Publications Repository. https://publications.jrc.ec.europa.eu/repository/handle/JRC132348

[25] See for eg. He, J., & Wu, B. S. (2020). A comparison study of environmental education and pro-environmental behaviors between Singapore and Taiwan secondary schools. Journal of Geographical Research, 72, 55-74. https://doi.org/10.6234/JGR.202011_(72).0003

#GreenHacks Recommendations

4. Approach & Methodology

Stakeholder Engagement Meetings

The Panel conducted in-person and online stakeholder engagement meetings with MSE, NEA, SEC, 800 Super Waste Management Pte Ltd, SembWaste Pte Ltd and NTUC FairPrice. The Panel also interviewed prominent non-profit environmental advocacy group Zero Waste SG.

During the meetings, the Panel sought feedback on the preliminary recommendations and asked specific questions with regards to existing initiatives and policies. Their valuable and insightful inputs have been included in this Final Report.

Surveys and focus group discussion results available upon request. Please direct requests to youthengagement@nyc.gov.sg

Learning Journey to SembWaste Pte Ltd Materials Recovery Facility

On 08 June 2024, 11 panel members visited the Materials Recovery Facility. It was an eye-opening experience to see what happens behind the scenes and learn about the limitations, difficulties and i

#GreenHacks Recommendations

5. Research Findings

The Panel investigated the underlying causes of poor recycling rates through public surveys, focus group discussions, and interviews with key ecosystem stakeholders. The results were then corroborated and analysed alongside broader research conducted into the topic both domestically and internationally.

The Panel concluded that **low recycling rates in Singapore are shaped by the following key factors: (i) knowledge gaps, (ii) inconvenient recycling processes, (iii) sub-optimal infrastructure, (iv) insufficient economic motivation, and (v) a lack of social norms.**

(i) Knowledge Gaps

Singaporeans lack knowledge regarding 'what' to recycle and 'how' to recycle it, contributing to low attempts at recycling and low actual recycling rates.

Key Findings

- Singaporeans have a general understanding of recyclable items but struggle with identifying contaminants and non-recyclables.
- The lack of understanding regarding proper recycling processes and receptacles is a leading cause of inaction.

Survey, Focus Group Discussion, and Interview Findings

- Over 60% of respondents in the #GreenHacks survey conducted by Milieu indicated a lack of knowledge as the ultimate or penultimate root cause of recycling issues.
- The survey further revealed misconceptions about recyclable items and highlighted the challenge of proper disposal eg. washing sweet drink bottles.

There are some misconceptions about which items can be recycled, yet majority are aware what can be deposited into the blue recycle bin.

Items that can be Recycled / **Can Deposit into Blue Bin**

Item	Items that can be Recycled	Can Deposit into Blue Bin
Newspapers, magazines, junk mail or brochure	96%	68%
Paper stationery (eg. A4/writing paper)	96%	68%
Plastic drinks bottles (1, 2, 5)	91%	60%
Plastic drinks bottles (3, 4, 6, 7)	91%	59%
Used beverage cartons (eg. milk/drink carton)	81%	41%
Clean tissue paper	83%	36%
Plastic wrapping for groceries	78%	33%
Shoes and bags	87%	20%
Used aluminium foil/trays	66%	17%
Soft toys	72%	14%
Laptop	86%	12%
Used printer	85%	12%
Styrofoam	49%	11%
Porcelain/Ceramic Plate	71%	10%
Batteries	70%	10%
Luggage	76%	10%
Plastic food containers with leftover food	47%	7%
Used, oily disposable cutleries	40%	6%

● Can be deposited into blue bin
● Cannot be deposited into blue bin

Base: All respondents, N=1000
Q4: Which of the following items cannot be recycled? ** NOTE: For this question we inverted the scores to change it to positive score (i.e. can recycle)
Q5: Which items do you think can be recycled by depositing into the blue recycle bins?

Source: Milieu survey for #GreenHacks, 2024

#GreenHacks Recommendations

5. Research Findings

Corroboration with External Research

- A 2023 NEA survey also confirmed the existence of knowledge gaps in identifying recyclable materials.[1]
- An academic study further revealed that pre-Institute of Higher Learning environmental education in Singapore is weak.[2]

Implications

- The lack of understanding regarding recycling in Singapore underscores the need for improved education and clearer labelling and information guidelines.
- Greater effort is needed to educate the public on proper recycling practices, and to promote mainstream recycling in everyday vernacular.
- Addressing the knowledge gaps and misconceptions surrounding recycling is crucial for increasing recycling rates and achieving Singapore's sustainability goals

(ii) Inconvenient Recycling Processes

A chief concern among interviewees is that recycling is too troublesome. The present recycling processes pose challenges for consumers, nudging them away from recycling.

Key Findings

- Singaporeans find recycling troublesome due to the perceived effort involved in cleaning and sorting recyclable items.
- The lack of convenient recycling infrastructure, such as easily accessible recycling bins, further contributes to this perception.
- Equal convenience is essential. Making recycling as convenient as using a trash bin is the most effective way to encourage recycling behaviour.

Survey, Focus Group Discussion, and Interview Findings

- 71% of respondents in the #GreenHacks survey found recycling often or sometimes troublesome or time-consuming due to the need to clean plastic containers before disposal.
- 40% of respondents encountered challenges in finding a recycling bin, particularly in workplaces, shopping malls, and neighbourhood facilities.
- Other common reasons for not recycling included having too few items, being too busy/tired, and lack of space to accumulate recyclables.
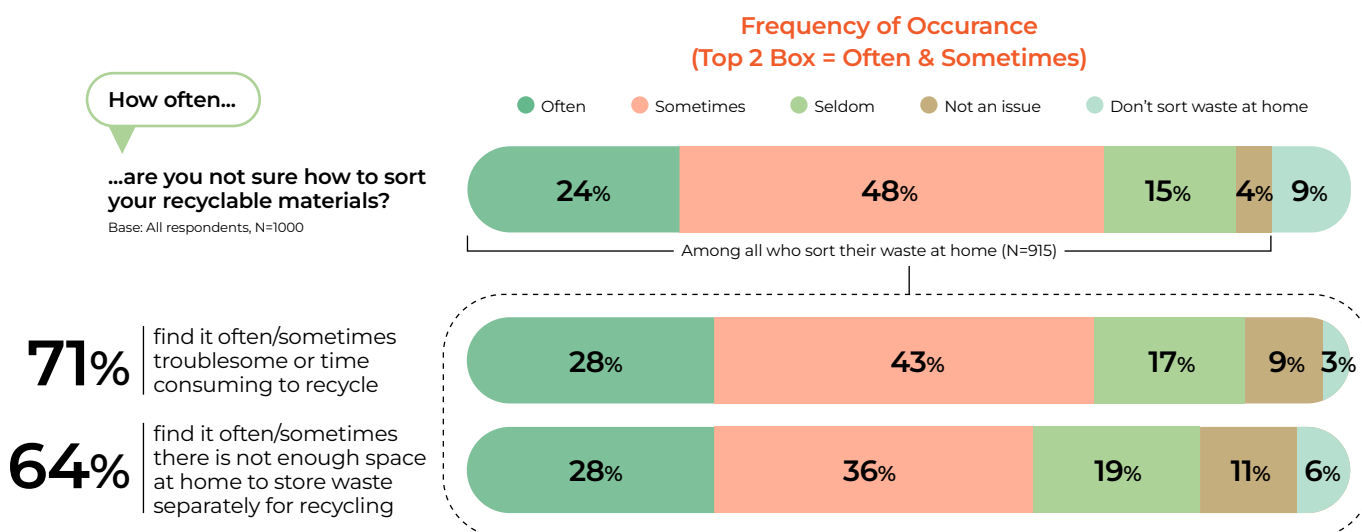
[1] National Environment Agency. (2023, September 14). 72 Percent of Households Recycle in 2023. https://www.nea.gov.sg/media/news/news/index/72-per-cent-of-households-recycle-in-2023
[2] Lim, J. (2022). Single-Use Plastics: A Survey of Pre-Service Secondary School Teachers in Singapore. HSSE Online 11 (2), 28–36.

#GreenHacks Recommendations

5. Research Findings

Multiple constraints prevent Singaporeans from fully embracing recycling as an organic part as an organic part of their routine/daily life

Frequency of Occurance
(Top 2 Box = Often & Sometimes)

How often...

...are you not sure how to sort your recyclable materials?
Base: All respondents, N=1000

● Often ● Sometimes ● Seldom ● Not an issue ● Don't sort waste at home

Often	Sometimes	Seldom	Not an issue	Don't sort waste at home
24%	48%	15%	4%	9%

Among all who sort their waste at home (N=915)

71% find it often/sometimes troublesome or time consuming to recycle

| 28% | 43% | 17% | 9% | 3% |

64% find it often/sometimes there is not enough space at home to store waste separately for recycling

| 28% | 36% | 19% | 11% | 6% |

[Base: All respondents, N=1000] Q6: How often do you encounter the situation where you are not sure how to sort your recyclable materials? (5-pt scale)
[Base: All who sort their waste at home, N=915] Q7. How often do you face the challenge of not having enough space at home to store waste separately for recycling?
Q8. How often do you find it too troublesome or time-consuming, such as needing to clean plastic containers before depositing them into the recycling bin?

Source: Milieu survey for #GreenHacks, 2024

Corroboration with External Research

- Academic research has corroborated the finding that inconvenience leads to generally decreased recycling rates.[3]
- However, it also notes that increasing the convenience of recycling beyond that of trash disposal can have mixed results, at times discouraging recycling.
- It suggests that efforts to promote recycling should focus on achieving parity in convenience between recycling and trash disposal, rather than solely aiming to make recycling more convenient.

Implications

- The perception of recycling being too troublesome highlights the need to improve recycling systems and clearer guidelines on how to prepare items for recycling.
- Improving the accessibility of recycling infrastructure and reducing the perceived effort involved in cleaning and sorting recyclables could encourage greater participation in recycling efforts.
- It may be necessary to achieve equal but not superior convenience in the recycling process versus waste disposal.

[3] Wei, D. (2024, April 1). Promoting Recycling Behaviours through Convenience: Focus on the Relatives, Not the Absolute. Cleaner Waste Systems, 7(100135). https://doi.org/10.1016/j.clwas.2024.100135.

#GreenHacks Recommendations

5. Research Findings

(iii) Sub-Optimal Infrastructure

Singapore's recycling efforts are significantly hampered by inadequate infrastructure. Difficulties in locating recycling bins, particularly in public spaces and workplaces, coupled with high contamination, a lack of standardisation and low density, create confusion and loss of confidence and motivation to recycle.

Key Findings

- Difficulties in finding recycling bins, especially in public areas and workplaces, discourage recycling practices.
- A lack of standardised recycling bins in public places - some commingled and others segregated - further adds confusion, discouraging consumers from attempting to recycle.
- Some are concerned by or have lost confidence in recycling due to the common contamination found within existing commingled recycling bins.
- A low density of recycling bins as deterring consumers from wanting to recycle due to inaccessibility and concerns over storage capacity.

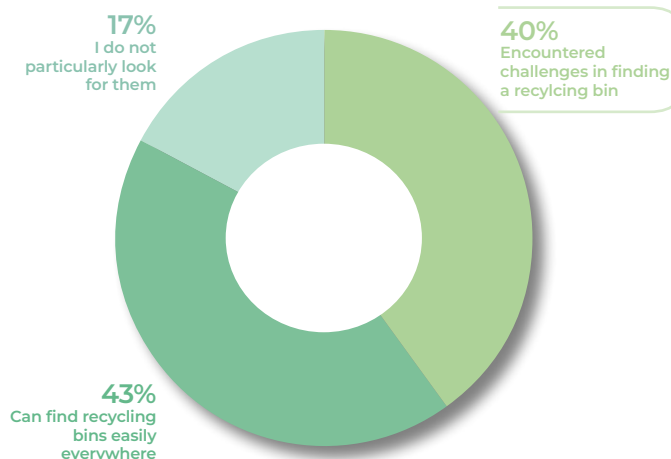**Survey, Focus Group Discussion, and Interview Findings**

- 40% faced difficulties in finding recycling bins, especially in shopping malls, workplaces, and neighbourhood facilities. Only 43% can easily find recycling bins everywhere, while 17% do not actively look for them.
- 71% of respondents found recycling often or sometimes troublesome or time-consuming, due to the need to clean containers before disposal.
- 57% agreed that they would "recycle more if there are highly accessible, segregated bins that make it easier for me to dispose of recyclable waste."
- FGD respondents revealed that a lack of standardisation made them sceptical regarding the purpose and effectiveness of recycling.
- Respondents also noted that long distances to recycling bins, particularly for the elderly and less mobile, and overflowing or contaminated bins create significant disincentives.
- The panel's interview with SembWaste Pte Ltd revealed that a targeted recycling pilot project in Punggol produced higher yield recycling, with relatively little contamination.

#GreenHacks Recommendations

5. Research Findings

40% of Singaporeans face difficulties in finding recycling bins especially in shopping malls, workplace and neighbourhood facilities

Challenges in finding a recycling bin in Singapore

17%
I do not particularly look for them

40%
Encountered challenges in finding a recylcing bin

43%
Can find recycling bins easily everywhere

Location ranked 1 as the hardest to find a recycling bin

Location	%
Workplace	22%
Shopping malls	21%
Neighbourhood facilities	20%
Void decks	16%
On the go facilities	15%
Schools	4%
Community Centres	3%

Base: All respondents, N=1000
Q15: Have you encountered challenges finding a recycling bin when you need to dispose of recyclable items?

Base: All who encountered challenges finding recycling bins, N=395
Q17: Please rank the following locations in terms of which location is the hardest to find a recycling bin when you need to dispose of recyclable items, from 1 to 5 with "1" being the most difficult.

Source: Milieu survey for #GreenHacks, 2024

Corroboration with External Research

- A Zero Waste SG publication in 2024 pointed to (1) accessibility of recycling bins and (2) lack of confidence in the effectiveness of current recycling processes as two major overriding concerns[4].
- In a survey conducted by SEC and Deloitte in 2018, 21.14% of respondents indicated that they were not aware of the location of their nearest recycling bin.[5]
- The concept of "Relative Convenience"[6] suggests that ensuring equal accessibility of recycling and trash disposal options can promote positive recycling behavior.
  - Policies can focus on both improving recycling convenience and reducing trash bin accessibility.
  - Complicated recycling rules, such as cleaning recyclables, may lead to contamination issues.
- Nudging people to be more environmentally friendly can be an effective and less intrusive way to encourage climate-friendly behaviors. It suggests that efforts to promote recycling should focus on achieving parity in convenience between recycling and trash disposal, rather than solely aiming to make recycling more convenient.

Implications

- The lack of available and appropriate recycling infrastructure is a significant barrier to recycling in Singapore.

[4] Zero Waste SG, "Understanding Barriers to Sorting at Source in Singapore: A Ground Sensing Survey" (Dec 2024)
[5] Singapore Environment Council, Deloitte & Touche Enterprise Risk Services Pte Ltd. (2018). Consumer Plastic & Plastic Resource Ecosystem in Singapore. Singapore Environment Council. https://sec.org.sg/pdf/reports/unlocking-sustainable-packaging-opportunities-in-Singapore.pdf
[6] Wei, Supra, note 27

#GreenHacks Recommendations

5. Research Findings

- Improving the accessibility and visibility of recycling bins, particularly in public areas and workplaces, is crucial.
- Implementing standardised recycling bins and providing clear instructions on how to use them can encourage proper recycling habits.
- Addressing issues such as overflowing and contaminated bins is essential for maintaining public confidence in the recycling system.

iv) Lack of Economic Motivation to Recycle

- Singapore's recycling efforts are being hampered by the lack of financial incentives. Although a substantial portion of the population indicates a willingness to recycle more with financial rewards, the current system lacks such mechanisms.

Key Findings

- The absence of economic incentives or disincentives is a significant barrier to recycling in Singapore.
- Financial incentives could motivate a substantial portion of the population to kickstart behaviour shifts to recycle more actively, but it should preferably not be permanent.

Survey, Focus Group Discussion, and Interview Findings
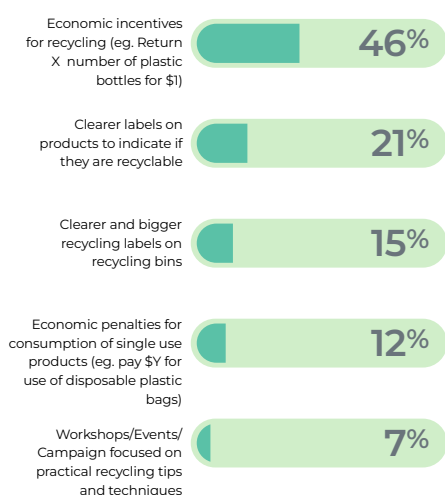
- 48% of respondents in the survey indicated that financial incentives or rewards would motivate them to recycle.
  - Among the "Transactional Recyclers" group, 66% emphasized that financial rewards would drive their recycling behavior.

  - The same group (66%) also stated that discounts or points for bringing their own bags, bottles, or containers would significantly reduce waste generation.
- 40% of #GreenHacks Feedback respondents felt that stricter regulations on recycling would motivate them to improve their recycling habits.
- In FGDs, the majority of respondents agreed that fines, while undesirable, could be highly effective in driving recycling behaviors.
- Many expressed a desire for direct financial benefits tied to recycling, such as rebates on utilities or transport.
- Zero Waste SG in their interview with the panel shared that incentivisation will not result in a strong mandate for all residents to want to recycle, but it is a perk for some demographics. Notwithstanding, incentivisation remains a good first onboarding step to switch to segregation practices, and in the longer run it could be removed or reduced.
- NEA shared with the panel, based on their experiences with the reverse vending machine trials, incentivisation could work for the short run but may not have longer-term financial sustainability with the burden of providing subsidy incentives. They preferred a model where either the PWCs could incentivise, or that there could be other ways to ensure sustainable returns on investment for such incentives.

#GreenHacks Recommendations
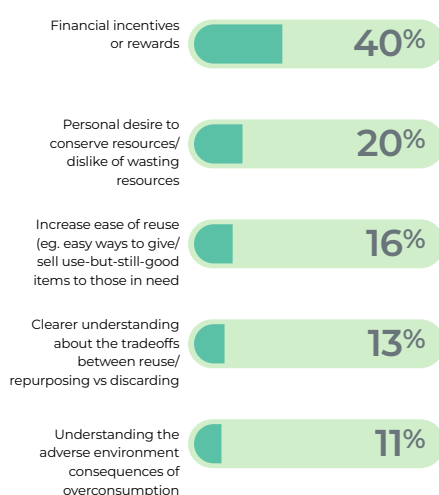
5. Research Findings

To cultivate environmentally-conscience behaviours among Singaporeans, economic incentives is the key.

Ranked 1 in most effectively to increase willingness, and knowledge to conduct recycle

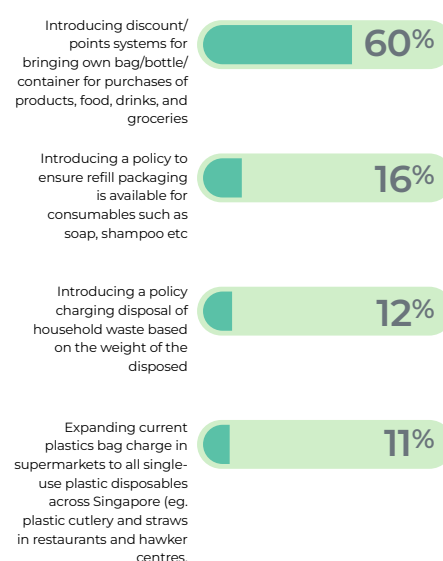|	
Economic incentives for recycling (eg. Return X number of plastic bottles for $1)	**46%**
Clearer labels on products to indicate if they are recyclable	**21%**
Clearer and bigger recycling labels on recycling bins	**15%**
Economic penalties for consumption of single use products (eg. pay $Y for use of disposable plastic bags)	**12%**
Workshops/Events/ Campaign focused on practical recycling tips and techniques	**7%**

Base: All respondents, N=1000 | Q14: Please rank the following options in terms of their effectiveness to increase your willingness and knowledge of, and ability to conduct recycling, from 1 to 5 with "1" being the highest rank.

Ranked 1 which would most compel to reuse items rather than discard

Financial incentives or rewards	**40%**
Personal desire to conserve resources/ dislike of wasting resources	**20%**
Increase ease of reuse (eg. easy ways to give/ sell use-but-still-good items to those in need	**16%**
Clearer understanding about the tradeoffs between reuse/ repurposing vs discarding	**13%**
Understanding the adverse environment consequences of overconsumption	**11%**

Base: All respondents, N=1000 | Q19: Which of the following would most compel you to reuse items, rather than discard? Please rank from 1 to 5 where "1" is the most compelling reason to reuse items.

Ranked 1 which would be most effective in reducing waste generation in Singapore

Introducing discount/ points systems for bringing own bag/bottle/ container for purchases of products, food, drinks, and groceries	**60%**
Introducing a policy to ensure refill packaging is available for consumables such as soap, shampoo etc	**16%**
Introducing a policy charging disposal of household waste based on the weight of the disposed	**12%**
Expanding current plastics bag charge in supermarkets to all single-use plastic disposables across Singapore (eg. plastic cutlery and straws in restaurants and hawker centres.	**11%**

Base: All respondents, N=1000 | Q20: Please rank which solutions would be most effective in reducing waste generation in Singapore? Please rank from "1" to "4" whereby "1" is the most effective.

Source: Milieu survey for #GreenHacks, 2024

Transactional Recyclers: It is not surprising that a higher proportion compared to total population is motivated by financial incentives/rewards.

Who are the Transactional Recyclers? Highly motivated by financial incentives/rewards to recycle		
Recycling Landscape	**Transactional Recyclers** (N=476)	**Total Population** (N=1000)
Awareness on Blue bin campaign	64%	67%
Awareness on Bloobox bin campaign	37%	42%
Awareness on #RecycleRight	19%	20%
Participate in recycling programmes/initiatives — Rarely (once a year or less)	30%	27%
Participate in recycling programs/initiatives — Never	36%	33%

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5. Research Findings

Barriers to Recycling	Transactional Recyclers (N=476)	Total Population (N=1000)
Often/Sometimes not sure how to sort recyclable materials	70%	72%
Often/Sometimes find it too troublesome to recycle	66%	71%
Often/Sometimes do not have enough space at home to store waste separately for recycling	58%	64%
Are extremely/very aware of what happens to recyclables after deposit	5%	7%
Find the labelling on recycling bins very somewhat clear and easy to understand	54%	57%

Barriers to Recycling	Transactional Recyclers (N=476)	Total Population (N=1000)
Are very/somewhat likely to recycle more often if they had a clear understand about how impactful their recycling efforts have on driving better environment and social outcomes	58%	66%
Detailed instructions on how to recycle would most encourage recycling more	38%	36%
Clarify of recycling symbols would most encourage recycling more	24%	24%
Used of standardised labels across products would most encourage recycling more	22%	22%
Visibility and placement of labels would most encourage recycling more	16%	18%
Government-led environmental campaigns were the most effective in increasing your knowledge and interest in recycling	46%	50%
Personal efforts and interest were the most effective in increasing your knowledge and interest in recycling	44%	49%
Economic incentives for recycling (eg. return X number of plastic bottles for $1) is most effective to increase willingness and knowledge of, and ability to conduct recycling	66%	46%
Financial incentives or rewards would most compel to reuse items rather than discard	66%	40%
Introducing a discount/points system for bringing your own bag/bottle/container for purchases of products, food, drinks, and groceries would be most effective in reducing waste generation in Singapore	68%	60%

#GreenHacks Recommendations

5. Research Findings

Corroboration with External Research

- A 2018 survey by the SEC and Deloitte showed that most respondents recommend incentives like product discounts and vouchers for bringing one's bag/container.[7]
- A 2019 Zero Waste City report highlighted the absence of monetary incentives as a key reason for low recycling rates in Singapore.
  - Their research shows that direct financial incentives in countries like Norway (through deposit return schemes) have achieved recycling rates of over 90%.[8]
  - However, it also notes that increasing the convenience of recycling beyond that of trash disposal can have mixed results, at times discouraging recycling.

Implications

- Implementing financial rewards, penalties, or a combination of both could significantly drive behavioral change and increase recycling rates in Singapore.
- Further research and consideration are needed to determine the most effective types of economic incentives and disincentives for the Singaporean context.

(v) Lack of Social Norms and Motivations

Recycling is presently not a social norm. Accordingly, consumers are not automatically bound by social expectations and normative logic to engage in recycling. It may prove beneficial to instigate the formation of a new socially responsible culture around recycling.

Key Findings

- The lack of social norms around recycling is a major barrier to greater participation in recycling Singapore.
- Many Singaporeans do not feel a strong social or cultural obligation to recycle, which contributes to a lack of motivation.

Survey, Focus Group Discussion, and Interview Findings

- Over 76% of respondents in the #GreenHacks feedback survey identified social/cultural norms as the topmost barrier to recycling.
- This factor was rated higher than other barriers such as lack of knowledge, poor infrastructure, etc.

Corroboration with External Research

- A 2019 Climate Change Public Perception Survey indicated that while many Singaporeans engage in climate-friendly actions like conserving water and reducing food waste, their overall behavior toward climate change has not significantly shifted since 2019[9].
- ZWSG in their 2024 recycling survey report also noted the lack of "deep rooted habits" for recycling in Singapore society due to practicality and convenience. In an interview with the panel, ZWSG added that there is a general lack of social motivation as individuals personally do not feel a strong need to change their existing convenient waste management habits.

[7] Singapore Environment Council, Deloitte & Touche Enterprise Risk Services Pte Ltd., Supra, note 28
[8] Casero R. (2019). The case for a deposit scheme in Singapore: Overview of the Norwegian Deposit Scheme and a comparison with Singapore. Zero [7] Waste City. https://zerowastecity.com/wp-content/uploads/2020/06/White-Paper-Deposit-Scheme-in-Singapore-Rev2.pdf
[9] National Climate Change Secretariat (NCCS) Singapore. (2019, December 16). Climate Change Public Perception Survey 2019. https://www.nccs.gov.sg/media/press-release/climate-change-public-perception-survey-2019/

5. Research Findings

Implications

- The lack of strong social norms around recycling highlights the need for public education and awareness campaigns to promote recycling as a socially responsible behavior.
- Nudges may prove useful in creating a sense of community and collective responsibility around recycling that could encourage greater participation.

6. Key Recommendations

6.1 Mandatory Standardised Labelling Scheme

6.1.1 Rationale

#GreenHacks recommends the introduction of a mandatory standardised labelling scheme for packaging materials for consumer products. This can significantly enhance household recycling in Singapore by addressing a key barrier: consumer confusion about recyclable materials and ways to consume more environmentally friendly products.

Modern consumerist culture, which places a premium on packaging and presentation, often results in products that comprise multi-layered packaging composed of different materials. The present lack of clear labelling makes it difficult even for well-meaning consumers to choose recyclable products at the point of purchase and/or to know whether they can recycle an item they have in possession.

The proposed labels would thus clearly indicate to consumers whether an item is e type of recyclable material used, for disposal into segregated bins. #GreenHacks has identified at least two potential methods of implementing a labelling scheme, which are elaborated upon below. The two methods are not mutually exclusive, and may be implemented in tandem if required.

6.1.2 Physical Labels

Summary and implementation

The most straightforward implementation of the above scheme would be through the responsibility to affix physical, printed labels on consumer products by importers, local producers and/or distributors. These could take the form of stickers applied onto packaging materials, or could be printed directly onto the packaging design (see Annex for some illustrative examples the Panel created).

To do so, the Panel is of the view that amendments to the Resource Sustainability Act 2019 ("RSA") will be required. The Government may take reference from the legislative amendments enacted for the Nutri-Grade labelling scheme for beverages. To give effect to the Nutri-Grade scheme, the relevant Minister had invoked powers under s 56(1)(e) of the Sale of Food Act 1973 to make regulations mandating the labelling of food products with the relevant nutritional information for sugar and saturated fat content.[10]

As the powers of regulation authorised to the Minister under s 52 of the RSA do not cover labelling requirements, the Panel submits that in order to emulate the Nutri-Grade scheme, primary legislation must first be passed to insert the powers of regulation vis-a-vis labelling of products into the RSA, following which the Minister may make such labelling regulations where appropriate.

The panel has studied similar legislation in foreign jurisdictions and is of the view that the proposed Singapore legislation is consistent with practices in such countries with physical product labelling laws for recycling. In France, the Code de l'environnement (Code of the Environment) requires producers to display a "Triman" symbol on products to inform consumers of recycling instructions.[11] Italy, meanwhile, introduced mandatory

[10] See Food (Amendment No. 2) Regulations 2023 (S 451/2023)
[11] Article L.541-9-3 of Code de l'environnement (French Code of the Environment)

#GreenHacks Recommendations

6. Key Recommendations

environmental labelling on packaging in 2020, requiring all packaging to be "appropriately labelled ... to facilitate the collection, reuse, recovery and recycling of packaging, and to provide consumers with proper information on the final destination of packaging."[12]

There might be a need to scope the regulations to certain prescribed products or entities. Particularly helpful for a phased implementation approach would be for MSE/NEA study deeper and engage with 3P stakeholders on which products might be of priority to have recycling information affixed on them. There could also be exclusions of certain products, which for instance may have other forms of labels designated for them. These could include drink products regulated under the upcoming beverage container return scheme, or products which may not be binary in their recyclability and have different component materials that require deeper explanation or instructions.

The panel also acknowledges there could be some products produced locally or overseas which already have some form of recyclable labels and there may be concerns of duplicative labelling. Nonetheless, the panel observes that this may still be in the minority of all consumer products and it has focused its efforts on most products which still lack a proper recycling label. The panel will also suggest that for some of these, Singapore's digital labelling information could help provide more clarity to dispel any confusion with the overseas labels already affixed to the products.

Key advantage: clear and easy communication

Physical labels most directly communicate an item's recyclability to consumers. This enables consumers to participate in recycling with minimal confusion and little need to modify their behavior significantly. The recent successful Nutri-Grade policy rollout signifies a strong precedence for such a scheme, where consumers could quickly evaluate the nutritional content of their drink and consequently their choice of the drink, by visibly observing the grade on the sticker. While there might be some considerations for costs and compliance including packaging template designs and inventory management, we believe that such challenges can be mitigated and are transitional.

- **Temporary Nature of Compliance Costs:** Packaging cycles typically follow periodic updates due to marketing, design refreshes, or regulatory changes. Recycling labels can be integrated into these regular updates, minimising long-term costs.
- **Policy Support During Transition:** Government subsidies or grants could offset initial compliance expenses, especially for small and medium enterprises. These subsidies would help businesses adopt the new labelling standard without compromising competitiveness.

Other concerns may include the impact of physical labels on Singapore's trade and industry competitiveness for wholesale and retail consumer products, as well as the product yield for the recycling sector downstream. Nonetheless, these go beyond

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[12] Article 219(5) of Legislative Decree 152/2006 (Italian Environmental Regulations)

#GreenHacks Recommendations

6. Key Recommendations

the scope of the panel's work and the panel advises MSE/NEA to engage with MTI and other agencies to study the implications deeper.

In the long run, businesses will benefit from a mandatory labelling policy through:

- **Enhanced Brand Equity:** Clear recycling labels reflect environmental, social and governance (ESG) commitments, strengthening brand equity among environmentally conscious consumers.
- **Regulatory Certainty:** A standardised labelling framework reduces uncertainty from future environmental regulations by ensuring early compliance.
- **Sustainability Partnerships:** Businesses could explore partnerships with recycling firms and eco-label certifiers, unlocking new sustainability-driven revenue streams.

Singapore's experience with the Nutri-Grade policy for beverages demonstrates that mandatory labelling is both feasible and scalable. Despite facing similar operational adjustments, drink manufacturers and importers successfully operationalised and met labelling requirements, proving that industry adaptation is achievable with proper regulatory guidance and enforcement. In our meeting with FairPrice Group, the team shared that the organisation had to adjust their operations to meet Nutri-Grade requirements on beverages sold, but it was not overly onerous and there were positive societal outcomes they appreciated from the Nutri-Grade policy.

In the same vein, by addressing short-term compliance hurdles with supportive measures and emphasising long-term sustainability benefits to the company and to society at

large, a mandatory physical labelling scheme for consumer products can be a practical and impactful policy to improve Singapore's level of household recycling and waste management.

6.1.3 Digital Labels

Summary and implementation

As most consumer products already come with barcodes printed onto their packaging, one possible method of implementation for the labelling scheme is to use the pre-existing barcodes to provide information to consumers. Upon scanning the barcode with their smart devices' camera or barcode scanning app, consumers could be directed to a website that supplies information such as the recyclability of the item or instructions of which bins to deposit the item.

The implementation of a digital labelling scheme would, however, require the creation and maintenance of an online database, where recycling or material information for each product is stored and can be accessed by consumers who scan the product's barcode. The panel consulted NEA on whether it could expand their existing registry for packaging and waste reporting data to accommodate for such data and the Waste Management Division expressed openness to exploring this possibility.

The registry database solution will, however, also require legislative amendments, as the RSA currently does not compel producers to share material or recycling information with the government. To effect such a law, the panel proposes to take reference to the reporting requirements in Part 4 of the

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RSA for the import and use of packaging materials.[13] A similar Part may be inserted into the RSA to require producers to report the information required to allow the Government to create the relevant database for users to check when recycling, or an amendment of the sections in Part 4 could be explored.

In other jurisdictions like Italy, the government has also encouraged the use of digital channels (eg. app, QR code, website) as an alternative to physical labelling.[14] Guidelines suggested that for digital recyclable labelling, clear indications on how the consumer can access the mandatory information be included, and both the access and interpretation of information should be precise and easy.[15]

Key advantage: minimal additional cost and compliance

As this method leverages upon existing product barcodes, impact on manufacturers and importers would be minimised, as they would not need to alter their packaging, and can simply enter the relevant information into an online database. Any changes or updates to recycling information can also be made more easily and immediately by updating the database, without having to change or amend packaging artwork and printing processes.

In terms of **corporate compliance burden**, the panel consulted enterprises such as NTUC Fairprice and response was positive towards the idea as it built on the existing compliance and packaging reporting framework of NEA. NTUC Fairprice highlighted that if it was not too operationally cumbersome and the user

flow dovetails with the existing system that NEA uses to collect their mandatory reporting data, the organisation was open to the idea.

While there may be concerns that some **consumers who are less technologically inclined** may either lack access to a smart device, or may not be confident using their devices (e.g. seniors who may not know how to access or use their camera or browser apps), the panel notes that the government has embarked on various Smart Nation initiatives to engage seniors to go digital and learn digital tools. NEA shared that the Telegram AI chatbot they launched in 2024 was part of its recycling public outreach efforts. The agency was able to engage different demographics with generally positive public response towards the interesting new technology tool, and digital considerations did not present a major challenge to NEA. In a similar vein, incorporating digital labelling can be seamless and simplified for public use as well.

6.1.4 Mandatory vs Optional Implementation

One consideration the panel deliberated on was whether compliance with the proposed labelling scheme should be made mandatory or optional. #GreenHacks recommends that the proposed labelling scheme be implemented on a mandatory basis.

Mandatory implementation would ensure that the labelling scheme is applied with consistency across all consumer goods. This simplifies accessibility for consumers, as they can always expect to find recycling information on their products, regardless of variables such as brand or source of manufacture.

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[13] Resource Sustainability Act 2019, Singapore (No. 29 of 2019), ss 19–23
[14] Italy Ministry for Ecological Transition (27 July 2022), " Labelling for packaging - Guidelines according to Art. 219 paragraph 5 of Legislative Decree 152/2006 and subsequent modifications and integrations"
[15] Ibid

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A mandatory scheme would also be more effective for ensuring that businesses adhere to a standardised system for recycling labels, thus averting the potential confusion for consumers if some businesses decide to independently introduce their own recycling markings in the future, which may conflict with other systems.

The panel also notes the significant effect on compliance and behavioural shifts that mandatory policies can bring, such as when tray-return rates at hawker centres went up by 26% in less than two years, during the implementation and subsequent enforcement of the tray-return rule.[16] A mandatory implementation would thus be the most effective way to ensure adoption and compliance with the labelling scheme.

While an optional implementation would be less onerous on businesses and would also require fewer resources for enforcement, it would also be less effective. Businesses may not be keen on complying with an optional scheme unless incentives are offered, which could then require the state to commit resources either way. Further, consumers would not have certainty as to whether any given product would be carrying the recycling label, and thus they would have to search the packaging of each product when seeking recycling information, which could deter them from relying on the labels.

Although the panel recommends a mandatory implementation of the labelling scheme, #GreenHacks also proposes a phased implementation to ease the transition. During this period, non-compliance with the scheme would not be penalised. This would help businesses manage the new requirements imposed upon them under the scheme, and move towards compliance gradually. An example of a phased timeline has been included below in section 6.1.5 Implementation.

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[16] Ong, S. (2024, March 21). 90% tray-return rate at hawker centres now, up from 65% in August 2021; enforcement to start from June 1. Today. https://www.todayonline.com/singapore/90-tray-return-rate-hawker-centres-now-65-august-2021-enforcement-start-june-1-2182821

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6.1.5 Phased Implementation Timeline

#GreenHacks recommends a phased approach to implementation, in order to ease the transition and lengthen the window for achieving compliance for businesses. A phased approach also buys time for educational campaigns to be run for consumers, teaching them what to expect from the new labelling scheme.

A suggested schedule for implementation would be as follows:

Phase	Duration	Details
1	6 months	**Consultation Phase** This phase serves to validate and finalise the policy prior to public announcement and rollout, and gives the government a chance to uncover potential pitfalls and adjust their approach accordingly internally before the policy is announced. **Industry outreach** • Private solicitation of feedback, in order to identify and correct potential issues with the policy prior to public announcement. **Focus group outreach** • Seek input from consumer focus groups to ensure that label design is informative and inclusive
2	6 months	**Preliminary Phase** Having consulted with key stakeholders during the earlier phase, this phase introduces the concept of physical labelling to the public at large and primes them on what to expect from the scheme, while continuing to solicit feedback from a wider demographic. **Policy announcement** • Press release on implementation of physical labelling scheme, to commence 6 months later **Educational efforts** • Public education on physical labelling scheme through various platforms, e.g. news outlets, social media • Solicitation of public feedback on policy, e.g. label graphics, additional features requested **Industry outreach** • Discussions with major businesses on impending implementation of physical labelling scheme • Solicitation of wider industry feedback on policy, e.g. implementation difficulties, timeline

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Phase	Duration	Details
3	1 year	**Rollout and Transition Phase** The first year of policy rollout will be a transition period, during which non-compliance will not be penalised. Duration of this transition period can be adjusted to accommodate difficulties faced by businesses in complying with the policy. **Policy announcement** • Press release on commencement of physical labelling scheme **Monitoring and enforcement** • Advisories to be sent to non-compliant businesses
4	Steady state	**Mandatory Phase** After a transition period, policy enforcement begins in earnest. **Policy announcement** • Press release on transition to mandatory enforcement of physical labelling scheme **Monitoring and enforcement** • Monitoring and penalisation of non-compliance to begin
5	Steady state	**Expansion Phase** Once businesses and consumers have adjusted to the labelling policy, the government may wish to explore further policy expansions. **Digital labelling** • Creation of digital labelling scheme, beginning with consultations with businesses and focus groups, and introduced through phased implementation akin to physical labelling scheme **Incentive scheme** • Rollout of incentives for businesses which prioritise environmentally-friendly materials, and consumers which purchase environmentally-friendly products

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6.2 Roadmap for Transitioning to Smart Segregated Bins

6.2.1 Rationale

A key obstacle to Singapore's low recycling rate is the high contamination rate inherent in a commingled waste recycling system. In 2022, the contamination rate of recyclable waste was 40%,[17] directly contributing to the record-low domestic recycling rate of 12%. Additionally, high contamination rates contribute to a decreased willingness to recycle. Zero Waste SG shared that based on their engagements with residents, doubts exist among corporates and schools whether items in the blue bins are eventually recycled, and the high contamination rate in the blue bins has also "turned people off from recycling".[18]

This was corroborated by the panel's survey, which indicated that 93% of respondents were unaware of what happened to the recyclables they disposed of. Focus group discussions (FGD) also highlighted that most respondents felt that recycling had negligible environmental impact. Thus, solutions to improve effective recycling rates and build public confidence in recycling must rapidly improve contamination rates. #GreenHacks believes this is best achieved by discontinuing commingling in favour of segregated waste streams.

After much deliberation and engagement with MSE and NEA officials over the course of the year, the panel understands that such a recommendation is neither a straightforward nor quick process. Both teams from the Environmental Policy Division (MSE) and Resource & Sustainability Group - Waste Management Division (NEA) have advised the panel that there are infrastructure, logistics and manpower costs that have to be taken into account in the proposed transition. One example cited was the existing dedicated schedule of the blue bin waste collection vehicles, and having a different system might require a reallocation of resources or adjustment to workflow by the public waste collectors (PWCs).

This paper thus proposes the introduction of smart bins via a transition roadmap to 2035, giving time for a phased and holistic implementation. This is based on case studies and literature reviews that indicate their effectiveness, and the panel also encourages MSE to align with the whole-of-government Smart Nation initiative promulgated by PMO.

6.2.2 Case Studies

In local pilot tests, smart bins have been demonstrated to effectively reduce recyclable contamination. An initial trial at Bishan by public waste collector (PWC), 800 Super Waste Management Pte Ltd, illustrated that smart bins could reduce contamination rates from 40% to 5%[19]

This achievement is explained by accountability, segregation and behavioural factors. In addition to these factors, the bins have also leveraged technology to issue points that can be exchanged for vouchers, incentivising users to recycle more and recycle right.

Through interviews with SG Recycle, the supplier of these smart bins, #GreenHacks discovered that two key drivers underpin the dramatic reduction in contamination rates demonstrated by the smart bins:

[17] Yu, A. (2024, June 19). Singapore's domestic recycling rate stalls at 12%, the lowest in over a decade. The Straits Times. https://www.straitstimes.com/singapore/domestic-recycling-rate-stalls-at-12-despite-decline-in-household-waste

[18] Yu, A. (2024, June 27). Smart recycling boxes for another 83 locations in Singapore by 2025. The Straits Times. https://www.straitstimes.com/singapore/smart-recycling-boxes-and-lockers-for-another-83-locations-in-s-pore-by-january

[19] Teo, J. (2023, March 21). Smart recycling boxes that reward residents for sorting waste have cut contamination rate. The Straits Times. https://www.straitstimes.com/singapore/smart-recycling-boxes-in-bishan-rewards-residents-for-sorting-waste-slashing-contamination-rate.

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1. **Accountability.** The introduction of a point-based incentivisation system for recycling requires user authentication to access the bins. This de-anonymises users, discouraging abuse of the smart bins.

2. **Segregation.** The smart bins' segregated modality isolates contamination by waste stream, limiting the extent of contamination on recyclable waste. The segregation further reinforces pro-recycling choice architecture by creating clear, low-burden defaults.[20] These inculcate recycling behaviours by prompting users to actively segregate waste at home.

According to SG Recycle, the business case for smart bins remains competitive relative to Bloobins; the smart bins' total cost of ownership (TCO) is expected to be lower than Bloobins. This is because, while implementing smart bins introduces higher upfront and energy costs, the interconnected and segregated nature of these bins enhances asset utilisation, which, on balance, results in a lower TCO.

The success of the Bishan pilot trial has prompted 800 Super to expand the trial to a further 83 locations by 2025.[21] In response to the positive results of this case study, #GreenHacks believes that segregated smart bins would significantly improve contamination and participation rates, considerably moving the needle towards MSE's commitment to achieving a 70% overall recycling rate by 2030.[22]

6.2.3 Implementation: A Summary

#GreenHacks recommends the phased implementation of smart bins over the next decade with the following principal considerations:

1. **A National Incentive Programme (NIP).** A National Incentive Programme should be established to coordinate and standardise incentive rates through a single unified platform. This would enhance ease of use, increase public reach, and leverage economies of scale. Moreover, non-monetary gamification should be integrated into the NIP. The platform should ideally be integrated into existing government platforms such as MyENV, OneServiceSG or LifeSG to reduce the risk of service fragmentation.

2. **Accountability, tracking, and access control mechanisms.** Through the NIP platform, users should be tracked and held accountable for their use of smart bins. The platform should also manage physical access to the bins, preventing bad faith or negligent actors from repeatedly contaminating them.[23]

3. **Enhanced logistic flows and asset utilisation.** The connected and segregated nature of smart bins should be leveraged to reduce operational costs. Smart bins would communicate with PWCs to plan optimised routes for waste collection. This would ensure efficient asset utilisation and reduce or bypass the need to operate a materials recovery facility (MRF).

[20] Zhang, Z. and Wang, X. (2020). Nudging to promote household waste source separation: Mechanisms and spillover effects. Resources, Conservation and Recycling, 162 (105054). https://doi.org/10.1016/j.resconrec.2020.105054
[21] Yu, Supra, note 40
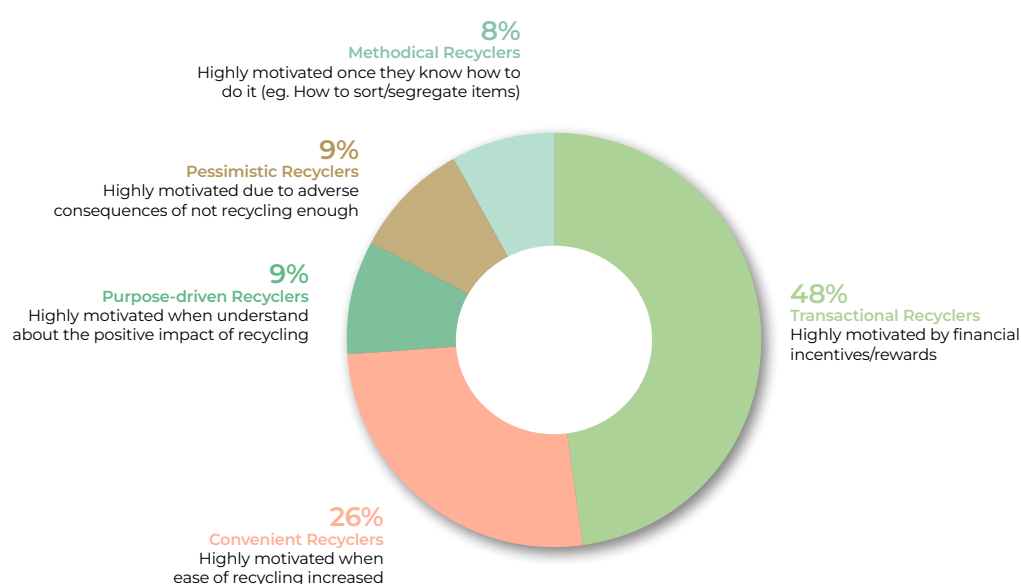[22] Zero Waste Masterplan Singapore, Supra, note 9
[23] Note that the accountability mechanism should not be understood as a form of enforcement per se, but rather as a form of behavioural signalling meant to send a strong government message that due, reasonable care should be afforded when disposing of recyclable waste.

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#GreenHacks' recommendation addresses public feedback received through its Milieu survey and the subsequent classification of motivators for recycling into transactional (48%) and convenient (26%) recyclers, characterised by financial incentives and convenience, respectively.

48% of Singaporeans are Transactional Recyclers who are motivted by incentives and 26% are Convenient Recyclers who would recycle if it is easy.

8%
Methodical Recyclers
Highly motivated once they know how to do it (eg. How to sort/segregate items)

9%
Pessimistic Recyclers
Highly motivated due to adverse consequences of not recycling enough

9%
Purpose-driven Recyclers
Highly motivated when understand about the positive impact of recycling

48%
Transactional Recyclers
Highly motivated by financial incentives/rewards

26%
Convenient Recyclers
Highly motivated when ease of recycling increased

The tech-enabled bins cater to transactional recyclers' desire for recycling to be rewarding. The enhanced logistics flows inherent to segregated bins make this financially viable as segregated systems have lower running costs relative to commingled systems, which can be partially passed down to consumers as incentives[24][25]. Concurrently, smart features like geolocation and fill-rate reporting make recycling more convenient, thus appealing to convenient recyclers.

[24] Ang, H.M. and Co, C. (2020, Aug 1). IN FOCUS: 'It is not easy, but it can be done' - The challenges of raising Singapore's recycling rate. Channel News Asia. https://www.channelnewsasia.com/singapore/in-focus-singapore-recycling-sustainability-blue-bins-waste-1339091
[25] Zero Waste Singapore. (2024, May). The Case for Sort It out. https://www.dropbox.com/scl/fi/527xjwetyb1rh0ho13lgn/Sio-Publication-1.pdf?rlkey=vk81w0ciksmul4xyv3uet9u3k&e=1&st=637ltwmw&dl=0.

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6.2.4 Implementation Roadmap: Exploratory Phase 1A

An exploratory "Phase 1A" should precede the three-phased implementation approach. This stage should be completed within the calendar year 2025. The goal of "Phase 1A" should be to allow NEA to gain a deeper understanding of known unknowns – in particular, the causal relationships between: (1) incentivisation and recycling rates; (2) segregated systems and contamination rates; (3) accountability mechanisms and contamination rates. Phase 1A should aim to provide high-quality data to optimise implementation and policymaking through a series of larger-scale A/B pilot tests in partnership with ZWSG and 800 Super Waste Management Pte Ltd as no such large-scale trials have been done. #GreenHacks recommends:

Subject	Implementation	Objective
Bloobins	1. Replace Bloobins with ZWSG's 2023 pilot bins in several neighbourhoods. 2. Alternate allocation equally between the pilot bins and Bloobins on a block-by-block basis.	1. To test if segregated bins would lead to lower contamination rates. 2. To identify if segregated bins would reduce usage bins. 3. MSE conducted a small-scale trial with ZWSG in 2023 (Zero Waste SG, 2023). The study showed that there was a net 4.28% decrease in the contamination rate through segregation. However, the small sample size (n=2) requires a larger-scale pilot.
800 Super smart bins	Collaborate with 800 Super Waste Management to temporarily disable incentives for some of its current smart bins.	1. To test if de-anonymisation and accountability enabled by the access control mechanism of smart bins introduces behavioural incentives that decrease contamination. 2. To test the effects of de-anonymisation and accountability on recycling rates.
800 Super Waste Management Pte Ltd smart bin	Request for information from 800 Super Waste regarding historical utilisation and contamination rate data before and after 800 Super Waste Management Pte Ltd's incentive cut in 2023.	To determine the ROI of incentivisation mechanisms vis a vis recycling and contamination rates. ZWSG recommends temporary incentivisation to promote traction, followed by the phase-out of monetary incentives with alternatives. NEA should test the accuracy of this hypothesis through this trial.

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6.2.5 Implementation Roadmap: Phases 1B, 2 and 3

Following Phase 1A, #GreenHacks envisions a three-phase implementation approach with a policy cycle of approximately ten years till 2035 for Singapore's transition from a commingled to a smart segregated recyclable waste system.

Phase 1B would be focused on setting the foundations for a smart segregated system comprising app platform development, incentive procurement, logistics contracts invitation to quote (ITQ), and sentiment sensing, which would be a veto criteria for evaluating readiness to move to the second phase.

The second phase (Phase 2) would comprise a limited large-scale trial run at one of Singapore's six geographical waste collection sectors.[26] This would enable MSE to conduct further A/B testing on the effects of a smart segregated system on operating costs, participation rates, contamination rates, and public support. If successful, a **general rollout and scaling-up would begin in Phase 3.**

Open Items	Key Stakeholders	Remarks
Phase 1B 1. NIP development and incentive procurement. 2. PWC ITQ. 3. Public sentiment analysis. **Timeline: 2025-2027**	1. MSE/GovTech 2. NEA RSG SD/WMD 3. MSE C3PD/EPD 4. PWCs	Phase 1B should be complete before the expiry of the Clementi-Bukit Merah PWC sector contract on 31 Dec 27. NEA could explore Corporate Social Responsibility (CSR) sponsors for incentive providers to reduce costs. Public sentiment analysis will be a veto criteria for continuation into phase two. NEA could leverage existing MOF DA PC/FA for incentive procurement.

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[26] The Mar 2027 Jurong PWC contract should stipulate a requirement for the replacement of Bloobins with NIP smart bins over the contract period with an abort option between 1 Apr 2027 - 31 Mar 2028.

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Open Items	Key Stakeholders	Remarks

Phase Two
 1. Debugging and optimisation of national platform and incentive procurement.
 2. Evaluation of smart bins against Bloobins.
 3. Public sentiment analysis.
 	
 Timeline: 2027-2028
 	
 NEA should consult private sector stakeholders who may encounter high implementation costs for segregated infrastructure. The government should help soften the landing if required.
	1. MSE/GovTech
	
	 2. MSE EPD
	
	 3. MSE C3PD/EPD
	
	 4. PWCs
		Evaluation Criteria
		 1. Effect of smart bins on contamination rate.
		
		 2. Target: ninefold reduction in contamination.
		
		 3. Effect of smart bins on participation.
		   a. Target: Positive or negligible effect on participation rates.
		   b. Potential tradeoffs between participation and contamination rates should be studied.
		
		 4. Net effect of smart bins on domestic recycling rate.

Phase Three 1. Scale-up of smart bins **Timeline: 2028-2035**	1. NEA WMD 2. PWCs	Gradual phase-in of smart bins should be implemented as a key requirement of PWC contracts between 2028 - 2029. MRFs should reach end-of-life and be repurposed for other functions. #GreenHacks notes that HDBs built from 2014 onwards have built-in commingled recyclable waste disposal chutes. Under a segregated system, the commingled recyclable bin should be repurposed for the highest-priority recyclable waste stream, or be sealed in the alternative. Phase Three should see a phase-down of incentives from 2035 onwards, in conjunction with a scaling-up of non-monetary incentives in the NIP. Zero Waste SG supports an eventual removal of incentives after traction is developed and use other forms of gamification like community challenges to sustain habits.

#GreenHacks envisions an accelerated decrease in contamination rate from 40% to less than 10% between 2025 and 2035, with stable or increasing utilisation rates. This would yield a more than 30% increase in recycled waste between 2025 and 2035 at no/low additional long-term cost to NEA, contributing to the extension of Semakau's lifespan beyond 2035 while establishing a cleaner post-Semakau future.

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6.2.6 Overcoming Limitations

An unavoidable limitation of #GreenHacks' recommendation is the long policy cycle associated with a modal switch from a commingled to segregated recycling system. The seven-year-long contract between PWCs and NEA contributes to this limitation.

The long policy cycle partially restricts the smart bins' ability to extend Semakau's lifespan beyond 2035. Instead, the positive effects of smart bins will be experienced chiefly after 2030. However, this does not mean that smart bins should not be explored as the need for high recycling rates extends beyond 2035. The smart bins can be viewed as another helpful contributor towards the island's lifespan extension.

In addition to the long policy cycle, smart bins are expected to have higher upfront costs than blue bins, imposing higher financial requirements on NEA over the 10-year implementation period. It is noteworthy to highlight that the smart bins' TCO is expected to be comparable to Bloobins'. Nevertheless, prudent financial planning can support the high upfront expenditure requirements, for example, through the issuance of Singapore Government Securities (Infrastructure) Bonds. Innovation should also be spurred through grants, open calls and partnering with IHLs and startups, to create lower cost models leveraging helpful technologies already available on the market for use cases in recycling.

Finally, there is a risk that segregated smart bins may be perceived to be more inconvenient than Bloobins due to the need for waste segregation at source. #GreenHacks believes that segregated smart bins would be equally or more convenient than Bloobins as the interconnected nature of the bins would mean that they would always be locatable, never full and close to high foot-traffic areas. Moreover, the finding that 71% of Bedok and Bukit Batok residents prefer segregated to commingled bins[27] would be incongruent with the potential public perception that segregated bins are inconvenient. Nevertheless, NEA should exercise caution by closely monitoring resident feedback on segregated bins and improve the accessibility and performance over time.

As with every policy, limitations and parameters are unavoidable. However, current trials of smart and/or segregated bins have proven successful in enhancing recycling outcomes. As such, the panel believes that NEA should further explore segregated smart bins despite these limitations.

[27] Zero Waste Singapore. (2023, April). Report on MSE Transparent Recycling Bin Pilots. https://www.mse.gov.sg/resources/zero-waste-sg-report-transparent-bin-pilot.pdf

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6.2.7 Communications & Collaborations

#GreenHacks commissioned FGDs with CYDP members to better understand public attitudes and common pain points related to recycling. The panel believes that a communication approach targeting these pain points would resonate with the public.

Insufficient bin quantity to support the HDB / Condo population **+ insufficient frequency of waste collection** led to **overflowing bins**

Recycling glass with other materials in blue bins **felt unsafe** and could **lead to potential injuries**

contamination and **overflowing bins** were **unsightly, dirty and attracted pests**

Bin misuse as **Trashcan 2.0**: The uneducated or apathetic public dumped food waste and non-recyclables in blue bins, resulting in **contamination**

FGD participants primarily expressed frustration with overflowing bins and contamination & safety risks associated with a commingled system. As such, the panel recommends the following emphasis points highlighted by ZWSG:

1. Big data analytics. Smart bins' internet-connected nature would enable PWCs to form usage heat maps and position them where most needed.

2. Self-monitoring. Internet-connected smart bins would allow PWCs to track fill rates in real-time, adjusting collection frequency as needed to prevent bins from overflowing. Self-monitoring bins can report fill rates to users, enabling users to find available bins and deter dumping.

3. Access control. Smart bins will require authentication to unlock and access, introducing accountability to the recycling process. This will deter apathetic or bad-faith actors from contaminating the bins. The access control function also prevents overfilling, reducing the incidence of overflowing bins.

In addition, the panel recommends **highlighting the positive effects of smart bins**, which reduce unnecessary collection runs, optimise milk run routes, and reduce or eliminate the need for an MRF. This reduces recycling costs, decreases carbon footprint, and enhances land use.[28] The panel also expects the introduction of recycling incentives to gain acceptance and traction with the public, as seen in the case study by 800 Super.

[28] Zero Waste Singapore, Supra, note 47

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#GreenHacks further proposes **strong public communication efforts** to engage and prepare the public for segregated smart bins. GCSO Mr Lim Tuang Liang, in a meeting with the panel, raised the possibility that the Ministry could consider designating a Year of Recycling encompassing a series of coordinated campaigns. The smart bins can be framed by MSE C3PD as part of large-scale awareness campaigns on recycling right, which will help condition the public towards a segregated modality. Some of these test sites can be presented as grassroots recycling corners to build a sense of residential responsibility to recycling right through segregation. C3PD could also consider partnering with social media influencers to promote the narrative that segregated waste recycling is fun, accessible and efficient. Finally, **collaborations with various stakeholders** - advocacy groups, ground up groups, green sector SSAs, offtakers, and even informal recyclers or rag-and-bone collectors - will be very helpful for this endeavour.

From Phase 1B onwards, NEA could consider implementing segregated metal cages - such as a successfully implemented cage setup at the back of Blk 85 Fengshan Hawker Centre and Market - to prepare the public for a segregated system in tandem with Bloobins to ease the transition from a commingled to segregated modality. These cages should ideally be placed at newly established recycling corners to strengthen grassroots efforts towards encouraging recycling – and recycling right.

Any abovementioned communication approach should include input from and involve collaboration with grassroots organisations, PWCs, advocacy groups, offtakers, and importantly, informal recyclers in the spirit of inclusive policymaking.

#GreenHacks believes that the totality of these efforts by ZWSG, C3PD, and social media, in harmony with all relevant stakeholders, will effectively shift the Overton Window - the range of policies acceptable to the public - in favour of segregated waste recycling, engendering public acceptance for the implementation of section 6.2.5, should the three abovementioned preconditions required for its implementation be fulfilled.[29]

6.3 Inter-Recommendation Synergies

#GreenHacks envisions potential synergistic integrations between the labelling and segregation recommendations. In the event that physical labels are adopted by MSE, #GreenHacks proposes that the corresponding labels are prominently displayed on the smart bins, thus enabling a convenient and gamified "match-and-play" approach to segregation. This hybrid approach, coupled with incentivisation for PWCs to facilitate a societal switch, was also echoed by Zero Waste SG in our interview.

Should a digital labelling solution be selected by MSE, #GreenHacks proposes the integration of the digital labels with the NIP platform to ameliorate the relative inaccessibility of digital labels vis-a-vis physical labels. Digital labels will be one layer of access separation away from physical labels as they must be scanned by a smart device to be seen. This is a limitation that can be transformed into a strength. For example, digital labels can be integrated into the NIP, such that a token point can be awarded when a digital label is scanned. This would function as a nudge to scan, and counteract the marginal inaccessibility of digital labels in relation to physical labels.

#GreenHacks supports integrated policymaking and invites MSE to further consider other possible opportunities for synergistic interplay between the two solutions or between these solutions and its current innovations or tools, such as the AI chatbot.

[29] The Overton window is the range of policies politically acceptable to the mainstream population at a given time.

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7. Conclusion

This policy paper on recycling in Singapore underscores the urgent need for increased public awareness and effective recycling practices. Despite the government's commendable efforts, there remains a significant lack of understanding about the importance of recycling, leading to stagnant recycling rates and a dismal contamination rate of 40%. To address this, the paper recommends two main strategies: (1) effective information dissemination through mandatory standardised and simplified labeling for recyclables, and (2) improvements in recycling infrastructure to transit towards segregated recycling bins by 2035. These measures, supported by public education and outreach, aim to foster a deeper understanding of recycling practices, encourage community engagement, and ultimately increase participation and efficiency to achieve the panel's goals of lower contamination rates and higher recycling rates.

By implementing these recommendations, the panel seeks to reshape the choice architecture, levers and policies of recycling, to drive improved stakeholder behaviours. Besides dovetailing with the Green Plan 2030 and Zero Waste Masterplan, it augments efforts to drive digital and smart nation strategies, alongside innovation and enterprise. The proposed plans are crucial for Singapore to meet its environmental sustainability targets and reduce the burden on its waste management systems. Nonetheless, success will depend on collaboration between government, industry and the public promoting a collective effort towards a more sustainable future. Outside the report's scope, MSE and NEA should also explore developing the recycling sector and nurture talent and innovation in this ecosystem.

Finally, the paper highlights the importance of learning from international case studies, such as those from Japan, South Korea and Europe, which have successfully implemented effective recycling policies. These examples demonstrate the significance of clear labelling and citizen involvement in driving proper recycling practices. By adopting similar approaches adapted to the Singapore context of predominant high-rise, high density public housing, Singapore can enhance its recycling infrastructure and public awareness, ultimately contributing to a more sustainable and environmentally conscious society.

The panel calls on the waste management, circular economy and 3P teams of MSE and NEA to study and respond to these recommendations and supporting findings, and to incorporate these suggestions for implementation in their policy review of the relevant areas. Agencies could also explore consultations with MTI, MinLaw, MCCY to delve deeper into the trade and industry, legal and community aspects which may be beyond the panel's scope to analyse, and/or collaborate with private sector and civil society organisations to finetune these proposals further.

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Annex

Illustrative prototypes of recyclable label stickers created by Youth Panel Member Dharma Halyn Deun